

* UMASS/AMHERST *



312066 0278 0035 4



Digitized by the Internet Archive
in 2014

<https://archive.org/details/massachusettspo1992mass>

LACRS. 1991

MASS. PC 1.1: 992-997 Inc

Years: 1993

1992
Annual
Statistical
Report

GOVERNMENT DOCUMENTS
COLLECTION

NOV 14 1997

University of Massachusetts
Depository Copy



Massachusetts Poison Control System

September, 1993

Designated as the Regional Poison Information
Center for Massachusetts by the Massachusetts
Legislature and the American Association
of Poison Control Centers



300 Longwood Avenue
Boston, MA 02115

POISON CENTER FACTS AT A GLANCE

1. The Poison Center received 43,771 poisoning-related telephone calls in 1992, an increase of 5% (2,122 calls) over 1991.
2. Children 2 years or younger accounted for 21,900 poisoning calls or almost 54% of the total.
3. The Poison Center also received 22,714 information calls and made 16,126 follow-up calls. Total telephone volume in 1992 was 82,612 incoming and outgoing calls. The volume of incoming exposure calls & incoming information calls has increased from the total in 1991 by 10%.
4. Operations at the Poison Center cost \$656,100 (direct-expenses only) of which 91% was spent on personnel. This represents a cost of \$7.94/call. The Poison Center accounted for over \$900,000 savings in unnecessary health services utilization in Massachusetts in 1992.
5. There were over 4,000 potentially severe or life-threatening poisonings and 31 deaths (0.07%) due to poisoning reported to the Poison Center in 1992.

STAFF

Director	Chief Specialist, Poison Information
Alan D. Woolf, M.D., M.P.H.	Judith Woodard-Jenkins, R.N., C.S.P.I.
Assistant Director	Senior Specialists, Poison Information
Open	Yael Myers, R.N., C.S.P.I. William Partridge, R.N., C.S.P.I.
Staff Toxicologist	Specialists, Poison Information
Michael Shannon, M.D., M.P.H.	Diane Bartell, R.Ph. Anita Bijan, R.Ph. Linda Bloomingdale, R.N. Marc Cadet, R.Ph. Kristine Cafferky, R.N. Keith Christanthus, R.Ph. Virginia Dafiotis, R.N. Chung Fang, R.Ph David Gaigal, R.Ph. MaryEllen Gevry, R.Ph Robert Hallisey, R.Ph. Suzanne Hitchcock-Bryan, R.N. Todd Landry, R.Ph. Evelyn Levenson, R.N. Yeefan Lin, R.Ph. Saffiya Mason, R.N. MaryAnn McBride, R.N. Kathleen McCullough, R.N. James Morelli, R.Ph. Melissa Prew, R.Ph. Villiscent Puran, R.Ph. Bette Pyne, R.N. Tom Quail, R.N. Arlyne Saperstein, R.N., C.S.P.I. Cecelia Silva, R.Ph. Mary Winkels Barbara Weinstein, R.N.
Administrator	
Anne Vaccaro	
Administrative Secretary	
Barbara J. Bennett	
Consultant, Research	
Judith Kassner, M.D.	
Coordinator, Public Education	
Linda Softley, R.N.	
Clinical Fellows	
Young-Jin Sue, M.D. (<i>finishes: 6/92</i>)	
Erica Liebelt, M.D.	
Brian Bates, M.D.	
Kenneth Mandl, M.D.	
Off-Site Consultants	
Rose Goldman, M.D.	
John Graef, M.D.	
Sam Lesko, M.D.	
Allen A. Mitchell, M.D.	
Lew Pepper, M.D.	
Barbara Scolnick, M.D.	
Arnold Soslow, M.D.	
Policy Consultant	
Open	

ADVISORY BOARD MEMBERS

Bob Masters, M.D.
BU School Pub Hlth
Hlth Serv Dep Rm A319
80 E. Concord Street
Boston, MA 02118
638-5043

Peter Goldman, M.D.
Maxwell Finland Professor
of Clinical Pharmacology
Harvard School of Public Health
677 Huntington Avenue
Boston, MA 02115
432-2260

Timothy Maher, P.H.D.
Associate Professor
Mass College of Pharmacy
and Allied Health Sciences
179 Longwood Avenue
Boston, MA 02116
732-2800

Cynthia Rogers
Dept. of Public Health
150 Tremont Street
Boston, MA 02111
727-1246

Deborah Klein-Walker
Dept. of Public Health
150 Tremont Street
Boston, MA 02111
727-3372

Ex officio
Alan D. Woolf, M.D., M.P.H.
Director
Mass Poison Control System
300 Longwood Avenue
Boston, MA 02115
735-6609

Louise Goyette, OEMS, Director
Emergency Medical Services
Dept. of Public Health
150 Tremont St. 2nd Floor
Boston, MA 02111
451-3433

Ron Kleinman, MD
Department of Pediatrics
Mass General Hospital
32 Fruit Street
Boston, MA 02114
726-2930

David G. Nathan, M.D.
Physician-in-Chief
Department of Medicine
Children's Hospital
300 Longwood Avenue
Boston, MA 02115
735-7681

Evan Charney, M.D. Director
Professor of Pediatrics
U Mass Medical Center
55 Lake Avenue North
Worcester, MA 01605
856-3199

Howard Spivak, M.D.
Associate Professor
Department of Pediatrics
New England Medical Center
171 Harrison Avenue
Boston, MA 02218
956-5241

Ken Leary, Director
Reg. Affairs and Quality Improvement
Mass Hospital Assoc.
5 New England Exec. Park
Burlington, MA 01803
272-8000

Fred Lovejoy, M.D.
Assist. Physician-in-Chief
Department of Medicine
Children's Hospital
300 Longwood Avenue
Boston, MA 02115
735-6605

Linda Doctor
Dept. of Public Health
150 Tremont Street
Boston, MA 02111
727-3372

Courtney Hutzinger
Legislative Analyst
Mass HMO Association
Park Square Building
31 St. James Avenue
Boston, MA 02116
722-4122

MEMBER INSTITUTIONS: 1992-1993

Addison Gilbert Hospital	Marlborough Hospital
Amesbury Hospital	Martha's Vineyard Hospital
Anna Jaques Hospital	Mary Lane Hospital
Athol Memorial Hospital	Mass College of Pharmacy
Atlanticare Medical Center	Mass Eye & Ear Infirmary
Baystate Medical Center	Mass General Hospital
Berkshire Medical Center	Mass Institute of Technology
Beth Israel Hospital	McLean Hospital
Beverly Hospital	Medical Center of Central Mass
Blue Cross Blue Shield	Melrose-Wakefield Hospital
Boston VA Hospital	Metro-West Medical Center
Brigham & Women's Hospital	Milford-Whitinsville Hospital
Brockton Hospital	Milton Hospital
Burbank Hospital	Morton Hospital & Medical Center
Cambridge Hospital	Mount Auburn Hospital
Cape Cod Hospital	Nantucket Cottage Hospital
Cardinal Cushing Hospital	Nashoba Community Hospital
Carney Hospital	New England Baptist Hospital
Charlton Memorial Hospital	New England Deaconess Hospital
Children's Hospital, Boston	New England Medical Center
Cooley Dickinson Hospital	New England Memorial Hospital
Cutler Army Hospital	Newton-Wellesley Hospital
Emerson Hospital	Noble Hospital
Falmouth Hospital	North Adams Regional Hospital
Faulkner Hospital	Norwood Hospital
Franciscan Children's Hospital	Providence Hospital
Franklin Medical Center	Quincy Hospital
Glover Memorial Hospital	Salem Hospital
Goddard Memorial Hospital	Somerville Hospital
Harrington Memorial Hospital	South Shore Hospital
Harvard Community Health Plan	Southwood Community Hospital
Harvard University Health Serv.	St. Elizabeth's Hospital
Haverhill Municipal Hospital	St. John's Hospital
Henry Heywood Memorial Hospital	St. Luke's Hospital, New Bedford
Hillcrest Hospital	St. Margaret's Hospital for Women
Holy Family Hospital	St. Vincent's Hospital
Hubbard Regional Hospital	Symmes Hospital
Jordan Hospital	Tufts University Medical School
Lahey Clinic Medical Center	U Mass Medical Center
Lawrence General Hospital	University Hospital
Lawrence Memorial Hospital	Waltham Weston Hospital & Med Ctr
Lowell General Hospital	Whidden Memorial Hospital
Ludlow Hospital	Winchester Hospital
Malden Hospital	Wing Memorial Hospital & Med Ctr

INTRODUCTION

The Massachusetts Poison Control System, founded in 1955 and regionalized in 1978, is one of the oldest and most active poison centers in the United States. The original six consortium institutions which organized this system: the Boston City Hospital, Tufts University Medical School, the Children's Hospital, the Massachusetts College of Pharmacy and Allied Health Sciences, New England Medical Center, and the University of Massachusetts Medical School all continue their active support.

This, the fifteenth year of support by Member Institutions, saw 90 hospitals and health maintenance organizations contributing to the operating budget. The Member Institutions now contribute approximately 18% of the System's operating budget.

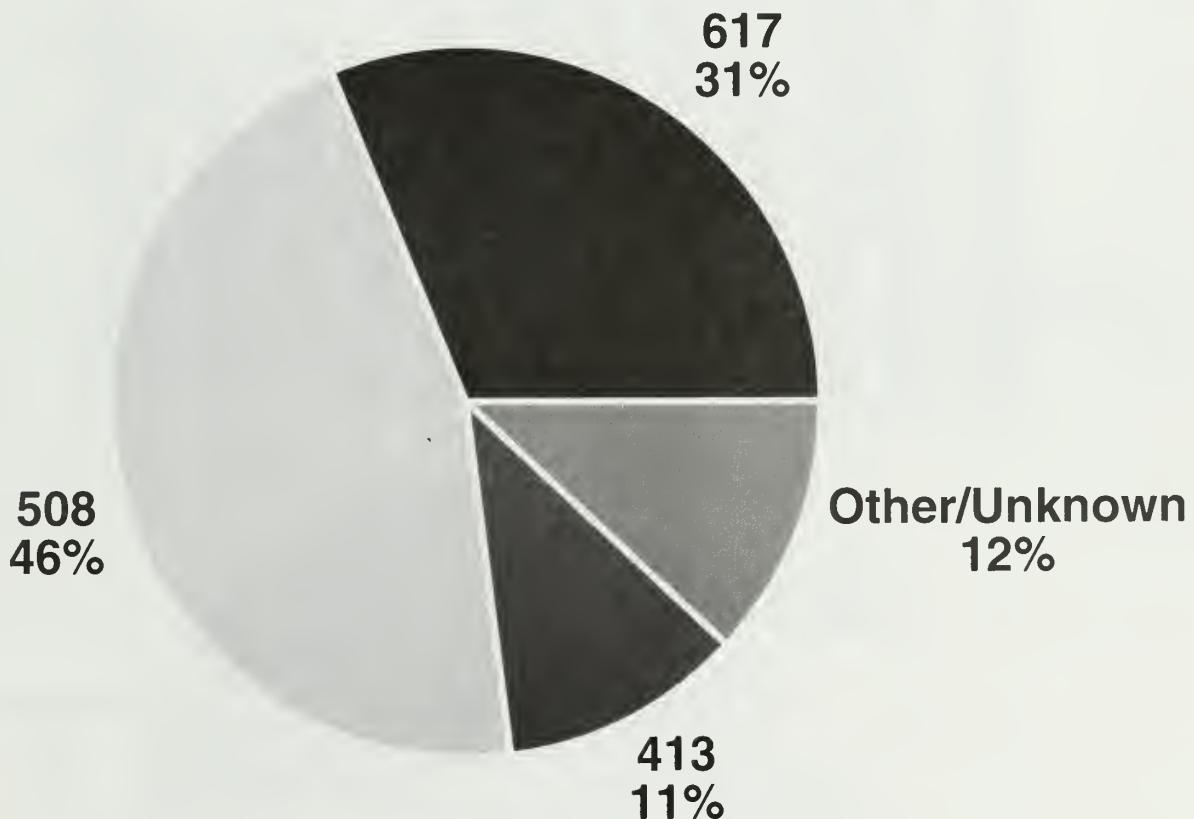
MISSION STATEMENT

The primary mission of the system continues to be that of providing the highest calibre of assistance and expertise in the medical diagnosis and management of poisoning cases involving the citizens of the Commonwealth of Massachusetts. Additionally the MPCS seeks to improve the quality of medical care given to potentially poisoned patients by maintaining an unparalleled standard of excellence in both clinical research activities and professional education endeavors. Finally it is integral to the mission of the MPCS that it serve the Commonwealth as a lead agency in the development of innovative strategies to prevent unnecessary injuries due to intentional and unintentional poisonings and toxic exposures.

GEOGRAPHIC DISTRIBUTION

More than 66,486 poisoning-related exposure or inquiry calls were reported to the Massachusetts Poison Center in 1992, representing an increase of 10% from the call volume in 1991. Within this total, there were 36,910 (84%) exposure calls from the public and 6,861 (16%) exposure calls from health professionals (total:43,771). Of the calls from the public, 46% were from 508 area code, 31% from the 617 area code, 11% from the 413 area code, and 12% from unknown sites within Massachusetts.

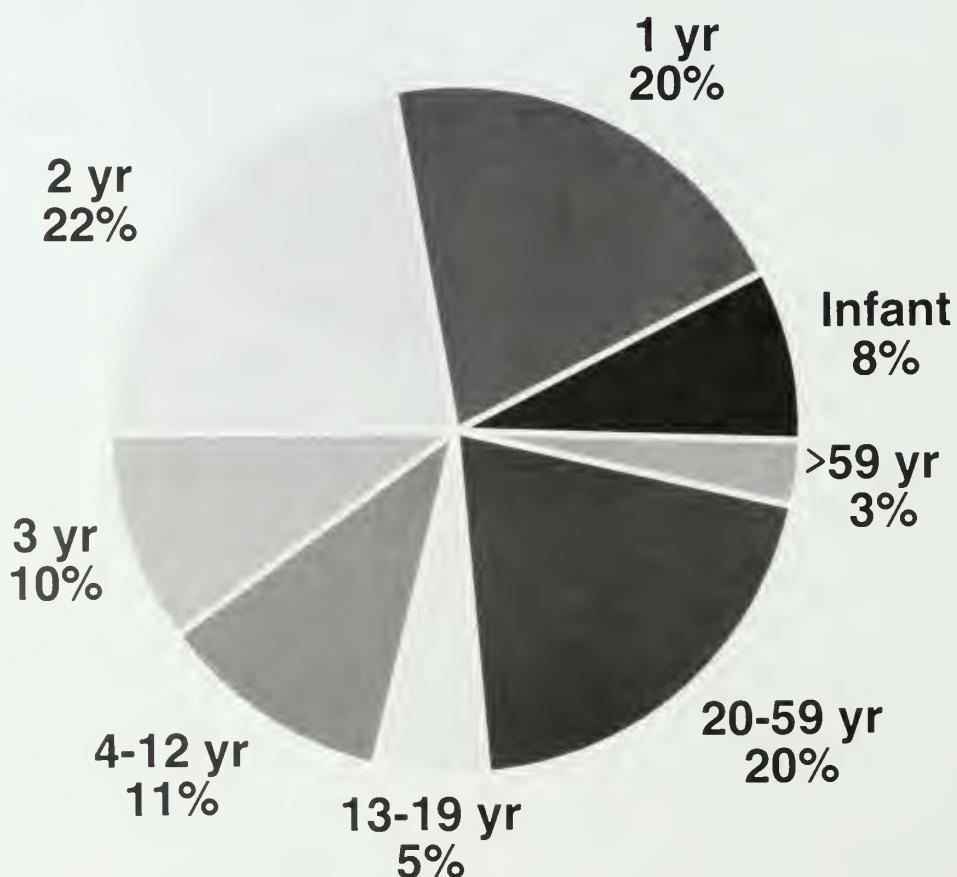
CALLS BY AREA CODES



AGE & SEX

The peak ages for victims of poisoning are children 0-3 years old and adolescents 13-19 years old. While there was no gender difference among early childhood exposures, more female adolescents than male adolescents were involved in poisonings.

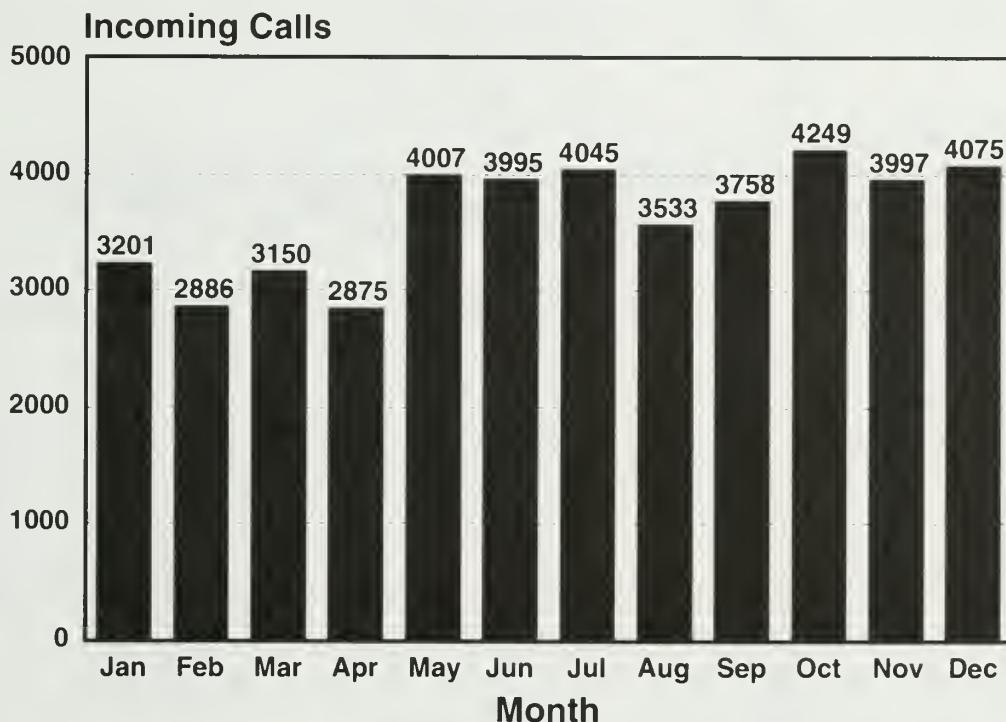
AGE (YEARS)	MALES	FEMALES	NOT SPECIFIED	TOTAL	%
<1	1778	1581	52	3411	7.8
1	4462	4033	134	8629	19.7
2	4865	4233	105	9203	21.0
3	2266	1923	41	4230	9.7
4	863	802	14	1679	3.8
5	456	372	12	840	1.9
6-12	1251	959	21	2231	5.1
13-19	946	1354	7	2307	5.3
20-29	1423	1557	10	2990	6.8
30-39	1389	1560	11	2960	6.8
40-49	707	941	5	1653	3.8
50-59	280	437	0	717	1.6
60-69	200	335	0	535	1.2
>=70	228	507	2	737	1.7
CLASSIFIED				42,122	96.2%
UNCLASSIFIED				1,649	3.8%
TOTAL				43,771	100%



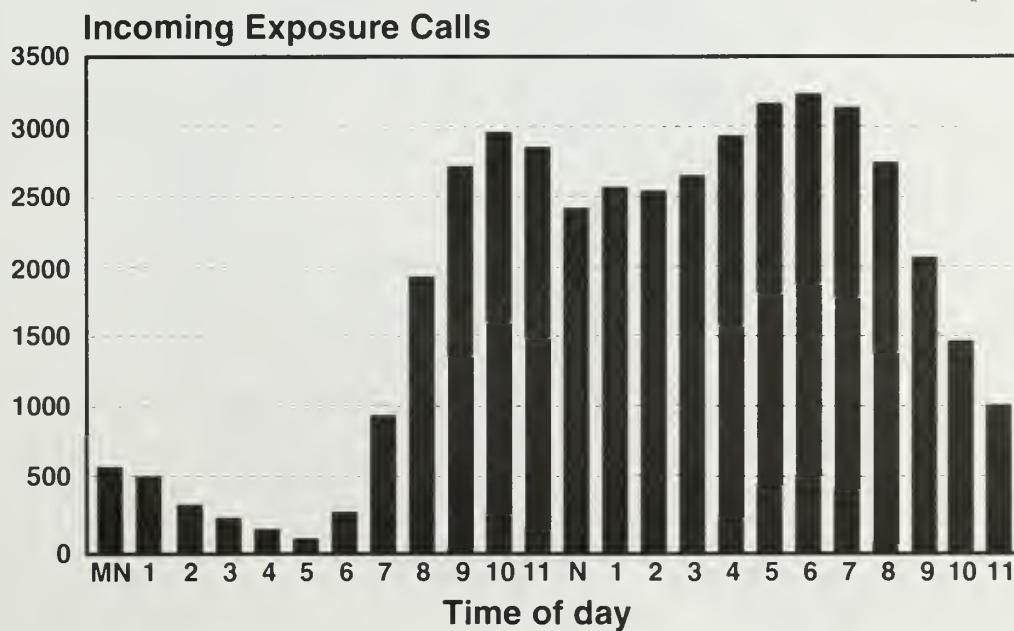
CALL VOLUME CHARACTERISTICS

The largest volume of exposure calls was received during September; the least number during April. The two peak time periods for poisoning calls from the public were at 9:00 A.M. to noon in the morning and again at 4:00-8:00 P.M. at night. By contrast, less than 6% of calls were received between midnight and 7:00 A.M.

EXPOSURE CALLS BY MONTH



POISON CENTER CALLS BY HOUR



SITE OF CALLER

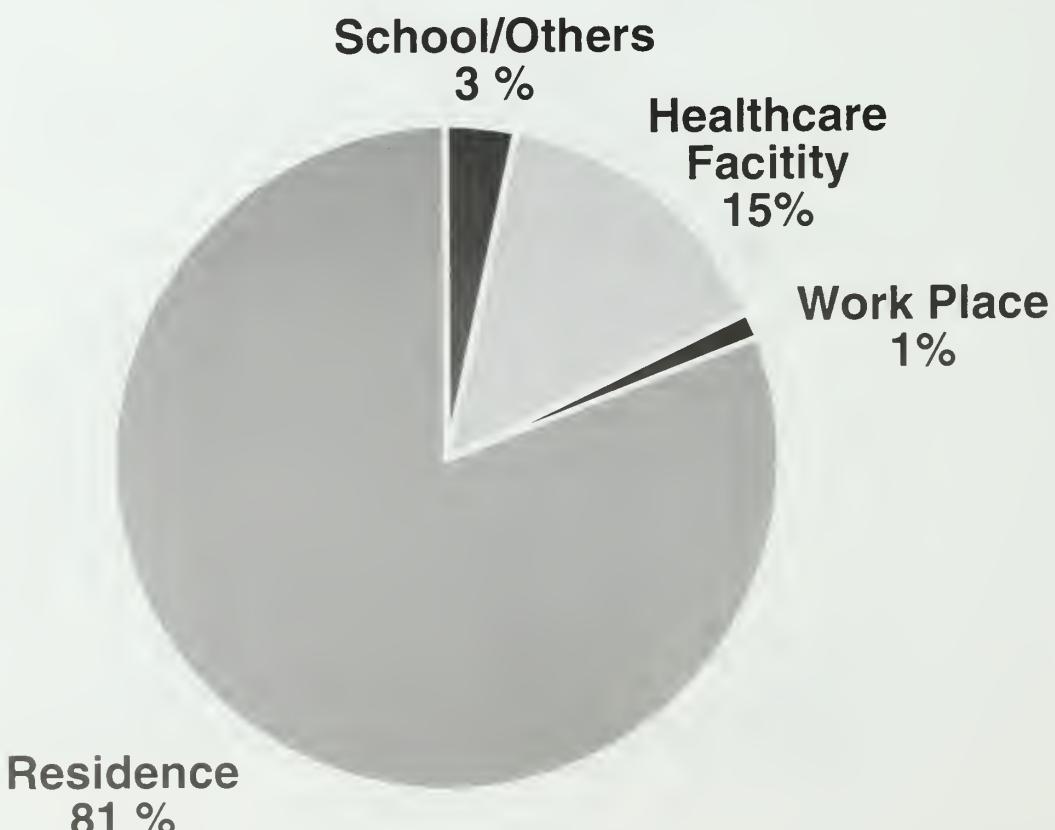
Over 96% of people seeking the Poison Center's advice were calling from either a private residence or a health care facility.

Caller Site	Number	Per Cent
Residence	35,307	80.7
Health Care Facility	6,721	15.4
Work Place	515	1.2
School	476	1.0
Other/Unknown	752	1.7
TOTAL	43,771	100.0

SITE OF EXPOSURE

The most frequent site of potential exposure to a toxin continues to be the victim's own residence. However the Poison Center also received an important number of calls concerning occupational exposures or exposures at schools or health care facilities as well.

Site of Exposure	Number	Per Cent
Residence	40,636	92.8
Workplace	812	1.9
Health Care Facility	477	1.1
School	524	1.2
Other	992	2.3
Unknown/Missing	330	0.7
TOTAL	43,771	100.0



CALLERS - PUBLIC

The Poison Center received 36,910 poisoning-related calls from the general public. There were 4,479 calls in which the town of the caller was not identified or which were made from outside Massachusetts. The 32,431 calls from more than 275 cities and towns have been tabulated. For some towns (East Longmeadow/Longmeadow, Stockbridge/West Stockbridge; Reading/North Reading; Adams/North Adams; Attleboro, North & South Attleboro) the populations and call frequencies were collapsed. Calls were received in 1992 from the following cities and towns, by area code:

AREA CODE 617 - 11,521 CALLS FROM GENERAL PUBLIC

RANK	CITY/TOWN	#	RATE
1	BOSTON	1894	3.28
2	LYNN	511	6.34
3	QUINCY	493	5.71
4	CAMBRIDGE	442	4.63
5	BROOKLINE	405	7.46
6	NEWTON	374	4.52
7	WEYMOUTH	330	6.04
8	WALTHAM	312	5.38
9	SOMERVILLE	305	4.06
10	MALDEN	254	4.72
11	MEDFORD	252	4.41
12	WEST ROXBURY	251	8.37
13	ROCKLAND	248	15.48
14	ARLINGTON	238	5.35
15	REVERE	236	5.48
16	EVERETT	204	5.56
17	MARSHFIELD	203	9.35
18	DEDHAM	199	8.35
19	NEEDHAM	184	6.64
20	WOBURN	181	4.97
21	NORWOOD	179	6.21
22	WATERTOWN	174	5.25
23	WELLESLEY	172	6.44
24	BRAINTREE	166	4.87
25	MELROSE	160	5.69
26	BRYANTVILLE	160	NA
27	BELMONT	157	6.37
28	STOUGHTON	156	5.74
29	LEXINGTON	149	5.32
30	MILTON	132	5.12
31	SAUGUS	131	4.92
32	READING	122	5.38
33	BURLINGTON	120	5.14
34	HINGHAM	118	5.98
35	WAKEFIELD	115	4.42
36	STONEHAM	111	4.95
37	MARBLEHEAD	111	3.49
38	SCITUATE	107	6.38
39	WHITMAN	106	8.03
40	CHELSEA	104	3.68
41	RANDOLPH	103	3.34
42	NAHANT	100	25.99
43	KINGSTON	96	10.55
44	HULL	95	9.17
45	WINCHESTER	92	4.55

46	CANTON	92	4.91
47	HANOVER	89	8.02
48	SHARON	87	5.18
49	WINTHROP	82	4.51
50	BEDFORD	67	5.13
51	HOLBROOK	63	5.64
52	RANDOLPH	61	2.01
53	DUXBURY	56	3.98
54	LYNNFIELD	51	4.52
55	COHASSET	43	5.97
56	LINCOLN	37	4.76
57	NORWELL	34	3.67
58	GLOUCESTER	7	0.24

TOTALS 11,521 CALLS

AREA CODE 508 - 16,757 CALLS FROM GENERAL PUBLIC

RANK	CITY/TOWN	#	RATE
1	WORCESTER/AUBURN	1038	6.15
2	LAWRENCE	660	9.57
3	BROCKTON	652	7.09
4	FALL RIVER	614	6.67
5	NEW BEDFORD	610	6.16
6	LOWELL	512	4.98
7	ATTLEBORO/N. ATTLEBORO	435	11.39
8	HAVERHILL	434	8.39
9	TAUNTON	364	7.32
10	FRAMINGHAM	352	5.30
11	PEABODY	274	5.81
12	FITCHBURG	264	6.58
13	NATICK	256	8.34
14	MARLBORO	251	7.80
15	BILLERICA	228	6.00
16	SALEM	220	5.76
17	HYANNIS	209	10.45
18	MILFORD	207	7.84
19	BRIDGEWATER	197	5.93
20	CHELMSFORD	194	5.95
21	BEVERLY	191	5.01
22	DANVERS	190	7.82
23	MIDDLEBORO	183	10.34
24	FRANKLIN	179	7.99
25	PLYMOUTH	167	3.66
26	NEWBURYPORT	165	10.00
27	DENNIS	161	11.34
28	ACTON	148	8.22
29	FALMOUTH	147	5.19
30	LEOMINSTER	146	3.82
31	GLOUCESTER	143	4.93
32	WILMINGTON	143	8.03
33	OSTERVILLE	140	7.00
34	WAREHAM	137	6.99
35	MANSFIELD	136	8.16
36	CONCORD	131	7.57
37	CLINTON	123	9.32
38	SAGAMORE	123	12.30
39	ANDOVER	121	4.16

40	WALPOLE	119	5.78
41	TEWKSBURY	118	4.28
42	EASTON	111	5.58
43	AYER	109	15.80
44	BLACKSTONE	105	12.93
45	WESTFORD	105	6.29
46	AMESBURY	100	6.62
47	FOXBORO	99	6.64
48	HUDSON	99	5.63
49	ORLEANS	99	16.50
50	SUDBURY	98	6.76
51	MEDWAY	96	9.50
52	WESTBOROUGH	96	6.81
53	GARDNER	96	4.78
54	MAYNARD	95	9.12
55	MANOMET	95	NA
56	HOLLISTON	92	7.25
57	BUZZARDS BAY	91	NA
58	WHITINSVILLE	90	9.00
59	NORTHBORO	90	7.51
60	GRAFTON	89	6.85
61	SHREWSBURY	89	3.69
62	GEORGETOWN	89	13.78
63	MILBURY	88	7.21
64	HOLDEN	86	5.88
65	CARVER	86	7.75
66	HARWICH	86	8.19
67	ASHLAND	84	6.83
68	NORTON	84	5.83
69	WEBSTER	83	5.12
70	PEPPERELL	82	7.88
71	IPSWICH	77	6.42
72	DRACUT	77	2.95
73	ORANGE	76	10.27
74	NORTH BROOKFIELD	76	16.17
75	SOUTH BRIDGE	75	4.25
76	HAMILTON	73	9.95
77	MEDFIELD	70	6.55
78	CATAUMET	68	NA
79	OXFORD	68	5.35
80	READING/N READING	67	1.93
81	TOWNSEND	66	7.45
82	TYNGSBORD	66	7.42
83	WRENTHAM	66	7.16
84	SPENCER	66	5.59
85	HOPKINTON	63	6.67
86	ATHOL	63	5.48
87	CHARLTON	62	6.39
88	MILLIS	60	7.77
89	LEICESTER	60	5.87
90	VINEYARD HAVEN	59	11.80
91	GROTON	59	7.66
92	WAYLAND	57	4.75
93	NANTUCKET	55	8.87
94	TOPSFIELD	55	9.55
95	BARNSTABLE	54	1.30
96	STURBRIDGE	53	6.68
97	WINCHENDON	52	5.84
98	CHATHAM	51	7.64
99	W. BOYLSTON/BOYLSTON	48	4.40

100	UXBRIDGE	47	4.52
101	ROCHESTER	43	10.64
102	LEOMINSTER	42	1.10
103	BELLINGHAM	41	2.73
104	RUTLAND	41	8.23
105	MARION	40	8.85
106	MANCHESTER	39	7.33
107	BREWSTER	39	4.45
108	LITTLETON	38	5.31
109	STERLING	38	5.70
110	ROCKPORT	38	2.37
111	ROWLEY	36	7.96
112	MERRIMAC	35	6.69
113	WESTPORT	34	2.43
114	BARRE	34	8.37
115	REHOBOTH	34	3.85
116	DOVER	30	6.02
117	ASHBURNHAM	29	5.23
118	LUNENBERG	29	3.17
119	TEMPLETON	28	4.31
120	WELLFLEET	27	10.50
121	WESTMINSTER	27	4.31
122	EDGARTOWN	26	8.21
123	SHIRLEY	25	4.01
124	BOLTON	24	7.54
125	PROVINCETOWN	24	NA
126	MATTAPOISETT	23	3.90
127	HARVARD	23	1.84
128	HUBBARDSTON	22	7.81
129	ESSEX	21	6.46
130	PRINCETON	18	3.60
131	DIGHTON	18	3.17
132	MASHPEE	16	1.94
133	WEST NEWBURY	15	4.30
134	ASHBY	13	4.57
135	OAKHAM	13	8.45
136	ASSONET	10	NA
137	SEEKONK	10	0.76
138	CHILMARK	9	15.00
139	BERLIN	9	3.91
140	PETERSHAM	5	4.40
141	SIASCONSET	4	NA
142	SWANSEA	2	0.13
143	NAUSHON	2	NA

TOTALS 16,757 CALLS

AREA CODE 413 - 4,153 CALLS FROM GENERAL PUBLIC

RANK	CITY/TOWN	#	RATE
1	SPRINGFIELD	850	5.46
2	HOLYOKE	360	8.36
3	PITTSFIELD	309	6.41
4	NORTHAMPTON	187	6.40
5	CHICOPEE	184	3.24
6	WESTFIELD	179	4.64
7	AMHERST	157	4.49
8	GREENFIELD	156	8.40
9	N. ADAMS/ADAMS	151	5.79

10	AGAWAM	145	5.28
11	LONGMEADOW/ E. LONGMEADOW	144	5.00
12	LUDLOW/INDIAN ORCHARD	138	7.28
13	EASTHAMPTON	128	8.16
14	PALMER	83	6.82
15	WILBRAHAM	70	5.50
16	BELCHERTOWN	63	5.79
17	BRIMFIELD	53	17.21
18	G. BARRINGTON	52	6.77
19	WARE	47	4.75
20	LEE	43	7.33
21	SHEFFIELD	40	13.68
22	TURNER'S FALLS	39	7.80
23	DALTON	38	5.36
24	DEERFIELD	36	7.13
25	SOUTHWICK	36	4.61
26	GRANBY	36	6.38
27	SHELBURNE FALLS	33	16.18
28	WILLIAMSTOWN	32	3.92
29	LENOX	31	6.10
30	WARREN	24	5.38
31	STOCKBRIDGE	21	5.47
32	HAMPDEN	19	3.98
33	MONTAGUE	19	2.29
34	NORTHFIELD	18	6.34
35	MONSON	18	2.30
36	GILBERTVILLE	17	POP NA
37	HUNTINGTON	17	8.46
38	WILLIAMSBURG	14	5.24
39	CONWAY	14	8.96
40	COLRAIN	13	7.32
41	HATFIELD	12	3.73
42	HINSDALE	11	5.55
43	BLANDFORD	11	9.02
44	SANDISFIELD	10	13.76
45	RUSSELL	9	5.53
46	ASHFIELD	9	5.15
47	OTIS	9	8.12
48	HEATH	9	12.62
49	CHARLEMONT	8	6.26
50	GRANVILLE	7	4.84
51	MILLER'S FALLS	7	POP NA
52	BERNARDSTON	7	3.40
53	HOUSATONIC	6	POP NA
54	CUMMINGTON	6	7.26
55	BECKET	6	3.77
56	CHESTER	3	2.33
57	WORTHINGTON	3	2.41
58	CHESTERFIELD	2	1.75
59	RICHMOND	2	1.19
60	HANCOCK	2	3.19

TOTAL 4,153 CALLS

*Penetration Rate = Number of Calls Per 1000 Population

(source of city/town population figures = 1990 United States Census with 1995 MISER estimates from the Massachusetts Dept. of Public Health)

** POP NA = Population figure for the town were not available

CALLERS - HEALTH PROFESSIONALS

The Poison Center received 6861 calls (16% of the total) from over 40 hospitals and other health-related institutions within Massachusetts in 1992. Besides hospitals, other large clients of the Poison Control System included The Fallon Clinic, Harvard Community Health Plan, East Boston Health Center, and the Chelsea satellite of the MGH. Physicians' offices, health centers, walk-in clinics, mental health facilities, nursing homes, correctional institutions, and homes for the retarded were other important users of poison center services.

NUMBER	RANK	HOSPITAL	# of Calls	% total
1	1	BAYSTATE MEDICAL CTR	186	2.7
2	2	BROCKTON	166	2.4
3	2	BRIGHAM & WOMENS HOSP	166	2.4
4	3	BOSTON CITY HOSPITAL	164	2.4
5	4	CHILDREN'S HOSP MED CTR	153	2.2
6	5	CAMBRIDGE HOSPITAL	138	2.0
7	6	MASS GENERAL HOSPITAL	136	2.0
8	7	BETH ISRAEL HOSPITAL	128	1.9
9	8	ST VINCENT'S HOSPITAL	123	1.8
10	9	METROWEST FRAMINGHAM	113	1.6
11	10	ST LUKE'S HOSP NEW BEDFORD	111	1.6
12	10	ST ELIZABETH'S HOSPITAL	111	1.6
13	11	LAWRENCE GENERAL HOSP	108	1.6
14	12	HALE MUNICIPAL HOSP	96	1.4
15	13	CARNEY HOSPITAL	94	1.4
16	14	BERKSHIRE MEDICAL CTR	93	1.4
17	15	GODDARD MEDICAL CTR	90	1.3
18	16	SOUTH SHORE HOSPITAL	86	1.3
19	17	WINCHESTER HOSPITAL	85	1.2
20	18	FAULKNER HOSPITAL	84	1.2
21	19	SALEM HOSPITAL	76	1.1
22	20	WALTHAM HOSPITAL	75	1.1
23	21	HOLY FAMILY HOSPITAL	73	1.1
24	22	MORTON HOSPITAL	71	1.0
25	23	WHIDDEN MEMORIAL HOSP	64	0.9
26	23	WINTHROP COMMUNITY HOSP	64	0.9
27	24	QUINCY CITY HOSPITAL	61	0.9
28	25	N SHORE CHILDREN'S HOSP	60	0.9
29	25	CAPE COD HOSPITAL	60	0.9
30	26	HENRY HEYWOOD MEM HOSP	59	0.9
31	27	ATHOL MEMORIAL HOSPITAL	58	0.8
32	27	NEW ENGLAND MEDICAL CTR	58	0.8
33	27	MILTON MEDICAL CENTER	58	0.8
34	27	HARRINGTON MEMORIAL HOSP	58	0.8
35	28	MERCY HOSPITAL	57	0.8
36	29	ST JOSEPH'S HOSPITAL	56	0.8
37	29	SOMERVILLE HOSPITAL	56	0.8
38	30	CARDINAL CUSHING HOSP	52	0.8
39	31	NORWOOD HOSPITAL	51	0.7
40	31	MALDEN HOSPITAL	51	0.7
41	32	JORDAN HOSPITAL	49	0.7
42	33	FRANKLIN MEDICAL CTR	48	0.7
43	34	MELROSE WAKEFIELD HOSP	47	0.7
44	35	LAHEY CLINIC HOSPITAL	46	0.7
45	35	HOLYOKE HOSPITAL	46	0.7
46	36	NEW ENGLAND MEMORIAL HOSP	43	0.6
47	37	HUBBARD REGIONAL HOSP	42	0.6

48	38	UNIVERSITY HOSPITAL	41	0.6
49	39	NASHOBA DEACONESS HOSP	39	0.6
50	39	FALMOUTH HOSPITAL	38	0.6
51	39	MILFORD-WHITINSVILLE HOSP	38	0.6
52	40	ADDISON GILBERT HOSP	36	0.5
53	40	CHARLTON MEMORIAL HOSP	36	0.5
54	41	NOBLE HOSPITAL	35	0.5
55	41	PROVIDENCE HOSPITAL	35	0.5
56	42	WING MEMORIAL HOSPITAL	33	0.5
57	42	BEVERLY HOSPITAL	33	0.5
58	42	COOLEY DICKINSON HOSP	33	0.5
59	43	EMERSON HOSP	32	0.5
60	43	LEONARD MORSE HOSP	32	0.5
61	43	ST JOHN'S HOSPITAL	32	0.5
62	43	MARLBOROUGH HOSPITAL	32	0.5
63	43	CHOATE SYMMES HOSPITAL	32	0.5
64	44	ANNA JACQUES HOSPITAL	31	0.5
65	44	LOWELL GENERAL HOSPITAL	31	0.5
66	45	HUNT MEMORIAL HOSPITAL	30	0.4
67	45	NORTH ADAMS REGIONAL HOSP	30	0.4
68	46	STURDY MEMORIAL HOSP	29	0.4
69	46	TOBEY HOSPITAL	29	0.4
70	47	MARY LANE HOSPITAL	27	0.4
71	48	ATLANTICARE HOSPITAL	26	0.4
73	48	LYNN HOSPITAL	26	0.4
74	49	MARTHA'S VINEYARD HOSP	25	0.4
75	49	LUDLOW HOSPITAL	25	0.4
76	49	LAWRENCE MEMORIAL HOSP	25	0.4
77	49	CLINTON HOSPITAL	25	0.4
78	50	BURBANK HOSPITAL	24	0.3
79	51	NEW ENGLAND DEACONESS HOSP	23	0.3
80	51	CUTLER ARMY HOSP	23	0.3
81	52	WORCESTER MEMORIAL HOSP	22	0.3
82	53	WILMINGTON REG HLTH CTR	20	0.3
83	53	MCLEAN HOSPITAL	20	0.3
84	54	ST ANNE'S HOSPITAL	19	0.3
85	55	FAIRVIEW HOSPITAL	18	0.3
86	55	BOSTON VA HOSPITAL	18	0.3
87	56	BROCKTON VA	17	0.2
88	57	WORCESTER HANNEMANN HOSP	16	0.2
89	57	U MASS MEDICAL CENTER	16	0.2
90	57	GLOVER MEMORIAL HOSPITAL	16	0.2
91	57	CABLE MEMORIAL HOSPITAL	16	0.2
92	57	NEWTON-WELLESLEY HOSPITAL	16	0.2
93	58	BEDFORD VA HOSPITAL	15	0.2
94	59	JB THOMAS HOSPITAL	16	0.2
95	60	SOUTHWOOD HOSPITAL	12	0.2
96	60	MT AUBURN HOSPITAL	12	0.2
97	61	HILLCREST HOSPITAL	10	0.1
98	61	LEOMINSTER HOSPITAL	10	0.1
99	62	NANTUCKET COTTAGE HOSP	9	0.1
100	63	MILFORD-WHITINSVILLE HOSP	8	0.1
101	63	JAMAICA PLAIN VA HOSPITAL	8	0.1
102	64	KENNEDY MEMORIAL HOSPITAL	7	0.1
103	64	PEABODY HOSPITAL	2	0.1
104	64	BOSTON FLOATING HOSPITAL	7	0.1
105	65	MASS EYE & EAR INFIRMARY	5	<0.1
106	65	WEST ROXBURY VA HOSPITAL	5	<0.1

107	65	NORTHAMPTON VA HOSPITAL	5	<0.1
108	66	NEW ENGLAND BAPTIST HOSP	4	<0.1
109	67	HOLDEN HOSPITAL	3	<0.1
110	67	HAHNEMANN HOSPITAL	3	<0.1
111	67	LEMUEL SHATTUCK HOSPITAL	3	<0.1
112	67	ST LUKE'S HOSP, MIDDLEBORO	3	<0.1
113	68	WESSON MEMORIAL HOSPITAL	2	<0.1
114	68	SPRINGFIELD MUNICIPAL	2	<0.1
115	69	WORCESTER COUNTY HOSP	1	<0.1
116	69	WESTERN MASS MED CENTER	1	<0.1
117	69	WORCESTER CITY HOSPITAL	1	<0.1
118	69	MED CENTER WESTERN MASS	1	<0.1
119	69	FARREN MEMORIAL HOSPITAL	1	<0.1
120	69	CENTRAL HOSPITAL	1	<0.1
121	69	MARY ALLEY HOSPITAL	1	<0.1
<hr/> TOTALS			5,317	77.5%

The Poison Center also received a number of calls from health maintenance organizations including:

Clinic/HMO	# of Calls	%
FALLON CLINIC	77	1.1
HARVARD COMMUNITY HEALTH PLAN	120	1.7
EAST BOSTON HEALTH CENTER	25	0.4
MGH-CHELSEA HEALTH CENTER	18	0.3
MEDICAL WEST	13	0.2
HARVARD UNIVERSITY HEALTH SERVICE	8	0.1
U. MASS HEALTH SERVICES	8	0.1
HULL MEDICAL CENTER	2	<.1
TUFTS UNIVERSITY HEALTH CENTER	2	<.1
MEDICAL EAST	1	<.1
TOTALS	274	4.0

Other calls came from a variety of other types of health facilities, which collectively accounted for 1,130 of the calls from health professionals:

	# of Calls	%
PHYSICIAN'S OFFICES	525	7.7
WALK-IN CLINICS	235	3.4
NURSING HOMES	138	2.0
MENTAL HEALTH FACILITIES	109	1.0
HOMES FOR RETARDED	77	1.1
AMBULANCES	43	0.6
MA MENTAL HEALTH CENTER	2	<0.1
SOLOMON-CARTER-FULLER CENTER	1	<0.1
TOTALS	1,130	16.5

The Massachusetts Poison Center also is consulted by out-of-state health facilities on selected cases of poisoning:

Facility	% of Total	% of Total
NASHUA MEMORIAL HOSPITAL (NH)	40	0.6
CATHOLIC MEMORIAL HOSPITAL (NH)	16	0.2
ELLIOT HOSPITAL (NH)	9	0.1
WENTWORTH - DOUGLAS HOSPITAL (NH)	7	<0.1
CONCORD HOSPITAL (NH)	5	<0.1
OTHER	63	0.9
TOTALS	140	2.0%

AGENTS INVOLVED

A total of 43,771 agents were listed as first toxins implicated in the poisoning calls taken in 1992. Of these 10,904 pharmaceutical and 15,250 other agents were identified by code and ranked frequency.

A. PHARMACEUTICALS

There were 10,904 poisonings involving drugs that were ranked by frequency.

DRUG	FREQUENCY	%
Acetaminophen	2053	18.8
Cough/Cold Preps	1485	13.6
Ointments/Cosmetics	986	9.0
Non-Steroidal Anti-Inflammatory Meds	768	7.0
Anti-Histamines	613	5.6
Vitamins	590	5.4
Benzodiazepines	531	4.9
Salicylates	435	4.0
Cyclic Anti-Depressants	434	4.0
Other, Unknown	433	4.0
Anti-Microbials	385	3.5
Antacids/GI Preps	350	3.2
Hormones	246	2.3
Carbamazepine	181	1.7
Narcotic Analgesics	142	1.3
Stool Softeners/Cathartics	113	1.0
Lithium	110	1.0
Amphetamines/Cocaine	101	0.9
Theophylline	98	0.9
Phenothiazines	96	0.9
ENT Preparations	95	0.9
Caffeine	91	0.8
Phenytoin	77	0.7
Barbiturates	74	0.7
Cardiovascular Drugs	54	0.5
Muscle Relaxants	51	0.5
Calcium Channel Blockers	49	0.5
Beta-Adrenergic Blockers	46	0.4
Anti-Cholinergic Meds	44	0.4
Anti-Convulsants	35	0.3
Digitalis	30	0.3
Drugs Of Abuse	25	0.2
MAO Inhibitors	21	0.2
Diuretics	17	0.2
Isoniazid	11	0.1
Alkaloids, Methysergide	6	0.1
Anesthetics	5	<0.1
L-DOPA	3	<0.1
Dapsone	3	<0.1
TOTALS	10,904	100%

There were 15,230 exposures to non-pharmaceutical agents which were ranked by frequency and category:

B. NON-PHARMACEUTICALS

RANK	AGENT	NUMBER	%	RANK	AGENT	NUMBER	%
1	Plants	1743	11.4	28	Powders/Talc	156	1.0
2	Soaps/Detergents	1443	9.4	29	Insects/Hymenoptera	141	0.9
3	Cosmetics/Cologne	1226	8.0	30	Freon	133	0.9
4	Hydrocarbons	925	6.1	31	Salt/Other Minerals	132	0.9
5	Cleansers	720	4.7	32	Fertilizers	132	0.9
6	Inks/Dye/Pencil/Paint	611	4.0	33	Organophosphate/Carbamate	130	0.9
7	Bleach	602	3.9	34	Camphor	121	0.8
8	Foreign Body/Battery	566	3.7	35	Rodenticides	109	0.7
9	Peroxide/Misc. Chemical	504	3.3	36	Ethylene Glycol	89	0.6
10	Isopropanol & Higher Alcohols	442	2.9	37	Matches/Explosives	81	0.5
11	Tobacco/Nicotine	402	2.6	38	Berries	69	0.5
12	Food	398	2.6	39	Water	68	0.5
13	Carbon Monoxide	365	2.4	40	Trichloroethylene	55	0.4
14	Toys	355	2.3	41	Snakes	55	0.4
15	Ethanol	340	2.2	42	Spiders	40	0.3
16	Mothballs/Deodorizers	309	2.0	43	Methanol	40	0.3
17	Pesticides	295	1.9	44	Other Bites/Stings	33	0.2
18	Other Toxins	295	1.9	45	Fire Extinguishers	28	0.2
19	Alkali	288	1.9	46	Essential Oils	18	0.1
20	Glue/Putty	253	1.7	47	Toothpaste	17	0.1
21	Acids	232	1.5	48	Formalin	14	<0.1
22	Mushrooms	224	1.5	49	Lacrimators	11	<0.1
23	Thermometers/Mercury	220	1.4	50	Other Household	10	<0.1
24	Silica	216	1.4	51	Ketones	2	<0.1
25	Lead & Heavy Metals	204	1.3	52	Herbicides	1	<0.1
26	Building Materials	190	1.2	53	Other Ketones	1	<0.1
27	Fluoride	186	1.2				
					TOTALS	15,230	100%

DEATHS

There were 31 deaths recorded by the poison center in 1992:17 males and 14 females. While the deaths were distributed over the months fairly evenly, May, January, July and August were high with 4 deaths each. All but one of the deaths involved adults (mean age:41 years; range 1-91 years). The 1 yr old child probably died of septic shock, although food poisoning was under investigation. Those hospitals reporting included:

a. Hospitals Reporting Deaths (Number Reported In Brackets)

Addison-Gilbert (1)	Clinton (1)	Lahey (1)
BayState (1)	Franklin (1)	Leonard Morse (1)
Beth Israel (2)	Hale (1)	Lynn Union (1)
Boston City (1)	Henry Heywood (1)	Milton (1)
Brigham & Womens (4)	Holy Family (2)	NEMC (1)
Cambridge (2)	St. Elizabeth's (2)	Norwood (1)
St. Vincent's (1)	Quincy (1)	Waltham-Weston (1)
St. John's (1)	Whidden (1)	Winchester (1)

Twenty-five different products or agents were cited as associated with these deaths. Note however that this does not necessarily mean these agents were the cause of death. Also multiple agents might have been implicated in a single case. Medications were involved in the majority of these deaths:

b. Agents (Number of Cases Shown in Brackets)

Acetaminophen (3)	Benzodiazepine (3)	Meperidine (1)
Acetaminophen-Codeine (1)	Carbamazepine (2)	Pesticide (1)
Acetaminophen-Butalbital-	Caustic (2)	Phenobarbital (1)
Caffeine (1)	Diphenhydramine (1)	Phenytoin (3)
Acetaminophen-Propoxyphene (1)	Ethanol (6)	Phenothiazines (4)
Activated Charcoal (1)	Food Poisoning (1)	Salicylate (1)
Amantadine (1)	Guanfacine (1)	Theophylline (2)
Amphetamine (1)	Ibuprofen (1)	Tricyclic Antidepressants (7)
Atenolol (1)	Mace (1)	

PUBLIC EDUCATION

The System continues to develop new approaches to educating the general public about poisoning prevention. Decentralization of materials and information has continued to be the major mode of Education. This year's efforts were conducted most capably by Ms. Linda Softley, Chairman of The Subcommittee on Public Education and Coordinator of Education. The dangers of both carbon monoxide and ethanol poisoning were targeted themes of this year's display at the Museum of Science. The Poison Center has permanent exhibits on display at the Museum.

Poison Prevention Week was met with a thoroughly statewide approach in increasing public awareness via press releases and media interviews. As a focus, System experts and volunteers collaborated with the Boston Museum of Science in a poisoning prevention project aimed at demonstrating the more commonly encountered poisons and the ways in which they can affect the human body. The system continues to meet its public education goals with a variety of activities. Seasonal and holiday related poisoning prevention announcements have been distributed to the media as a public service on a regular basis. Additionally over 72,860 telephone stickers and 23,000 poison center brochures were distributed throughout the state in 1992. New outreach initiatives include a prevention intervention aimed at homeless families living in public shelters. Another includes the development of more effective educational materials with respect to plant toxicity and pesticides.

A concentration upon targeting more effective media outreach has produced new contacts and increased coverage of important poisoning issues. TV coverage has included: channel 7 - Healthwatch; channel 5; news features; Neighborhood Network News. Carbon Monoxide (CO) Poisoning and its prevention was the chosen focus of attention throughout winter. Hundreds of calls related to (CO) and exposures to the gas were forwarded to the Public Educator for management. As a result of this activity; the possibility of collaborative EPA/MPCS grant for Education in (CO) is being explored. An Education grant to embrace all aspects of a more effective public education outreach initiative is also being explored.

Presentations to various community groups and organizations in 1992 included:

Audience	Location
General Public	Museum of Science, Boston
Nursing Home Staff	Bedford
NE Telephone Staff	Dedham
General Public	Newton-Wellesley Hospital Health Fair
Parents	Headstart Health Fair-Mattapan
Boston Edison Employees	Boston

PROFESSIONAL EDUCATION

Clinical Toxicology Review, now in its fifteenth year, has published over 174 individual issues. CTR's have a national circulation and are distributed without charge to member institutions within Massachusetts.

Training - The Poison Center continues to serve as a training site for health professionals. Formal collaborative teaching in clinical toxicology has been arranged for pharmacy students from the Massachusetts College of Pharmacy and from Northeastern University School of Pharmacy. Both pediatric and adult emergency medicine residents from Boston City Hospital include a one month experience at the Poison Center among their rotations. Pediatric residents from Children's Hospital and the Massachusetts General Hospital continue to join us on elective rotations. Dr. Betsy Spitler, an emergency medicine resident at U Mass Worcester, also spent a month in training at the Poison Center. Pediatric emergency medicine fellows from Children's Hospital take a 1 month rotation in clinical toxicology as well. The Poison Center, in collaboration with the Emergency Medicine program at Children's Hospital, continues to provide a medical pediatric physician. This is a highly competitive, sought after position for physicians-in-training nationwide and qualifies the physician to become board-certified in medical toxicology. The Poison Center continues to welcome guests from other states and countries who are interested in clinical toxicology. Dr. Diane Bourlier, an emergency medicine fellow at the University of Florida in Miami spent a month in training at the poison Center. Dr. Robert Baevsky from the emergency medicine program at SUNY - Albany also spent a month with us studying clinical toxicology.

Postgraduate Education - Poison Center staff have been active in providing continuing education lectures and courses for nurses, physicians, emergency medical personnel, social workers, pharmacists, and policy makers. Off-site training seminars, grand rounds, and other educational formats were provided to the following Massachusetts institutions in 1992:

Cooley - Dickenson Hospital
Children's Hospital
MA Institute of Technology
Cincinnati Children's Hospital
St. Anne's Hospital

Cambridge City Hospital
Falmouth Hospital
MA General Hospital
Beth Israel Hospital
Brigham & Women's Hospital

Research - The Poison Center continues to serve as a catalyst for research into the epidemiology, diagnosis, management, and prevention of various types of poisonings. Thirteen research abstracts were presented at the Annual Scientific Meeting of the American Association of Poison Control Centers in Tampa last September Topics included:

Poisoning Exposures In Pregnancy
Predictors Of Toxicity In Theophylline Overdose
Extracorporeal Elimination of Theophylline
Theophylline And Older Patients
Enhancing Elimination of Theophylline: Efficacy Study
Hyperglycinemia and Ethylene Glycol Poisoning
Liver Transplantation For Toxin-Associated Liver Failure
Sertraline Toxicity
Radiopacity of Paradichlorobenzene
Lead in Young Children
Dimethylacetamide/Ethanediamine Toxicity
Efficacy of Oral DMSA in Lead Poisoning
Cholestyramine as an Adsorbent for Lindane

The Poison Center has received an award to study the prevalence of plumbism among young children who have been poisoned. Principal investigators are Ken Mandl, M.D. and Alan Woolf, M.D. The grant is funded by the Ambulatory Pediatric Association. The Poison Center has also received an award from Marion Merrill-Dow Pharmaceuticals to investigate the interactions between activated charcoal and sucralfate. The principal investigators are Young Jin-Sue, M.D. and Alan Woolf, M.D. The Poison Center has also been named to coordinate a national surveillance research project to study unintended exposures to transdermal nicotine patches, sponsored by the AAPCC and Lederle Laboratories. The principal investigator is Alan Woolf, M.D.

MASSACHUSETTS POISON CONTROL SYSTEM

PUBLICATIONS 1992-1993

PUBLISHED ARTICLES AND REVIEWS

1. Hite C, Shannon M. Clinical Profile of Apparently Healthy Infants with In Utero Drug Exposure. J Obstet Gyn Neonat Nurs 1992;21:305-9.
2. Kassner J, Shannon M, Woolf AD: Methyl-xanthines in Intensive Care Medicine Little, Brown, and Co. 1992.
3. Lovejoy FH, Jr., Shannon M, Woolf A. Recent Advances in Clinical Toxicology. Curr Prob Ped 1992;22:119-129.
4. Shannon MW: Cocaine, Opiates, Tricyclic Antidepressants in Emergency Medicine H. May, Ed. 2nd., 1992.
5. Shannon M. Duration of QRS Disturbances after Severe Tricyclic Antidepressant Intoxication. J Tox-Clin Tox 1992;30:377-386.
6. Shannon MW. Ethylene Glycol Intoxication - Still Not Simple. J Int Care Med 1992;7:219-220.
7. Shannon M, Lovejoy FH, Jr. The Role of Acute Versus Chronic Intoxication on Clinical Features of Theophylline Poisoning in Children. J Pediatr 1992;121:125-130.
8. Shannon M, Wernovsky G, Morris C. Exchange Transfusion in the Treatment of Severe Theophylline Poisoning. Pediatrics 1992;89:145- 7.
9. Shannon M, Graef J. Lead Intoxication in Infancy. Pediatrics 1992;89:87-90.
10. Shannon MW, Lovejoy, Jr FH: Reye's Syndrome in Emergency Medicine H. May, Ed. 2nd Ed., 1992.
11. Soslow A, Woolf AD: Reliability of data sources for poisoning deaths in Massachusetts. Amer J Emerg Med 1992;10:124-127
12. Sue YJ, Shannon MW. The Pharmacokinetics of Drugs in Overdose. Clin Pharmacokin 1992;23:93-105.
13. Woolf AD: Section 168: Salicylates, Amphetamines, Insecticides, Phencyclidine in Textbook of Emergency Medicine, 2nd edition, ed. May H: Little, Brown & Company 1992.
14. Woolf AD, Lovejoy FH: Principles of Toxin Assessment and Screening in Pediatric Critical Care eds. Fuhrman B.P. and Zimmerman J.J., The C.V. Mosby Co., St. Louis, 1992.
15. Woolf AD, Vandeven A: Juvenile Delinquency & Conduct Disorders in Developmental-Behavioral Pediatrics eds. Levine M., Carey W., Crocker A. W. B. Saunders Co., Philadelphia 1992.
16. Woolf AD: Nitriles. Clinical Toxicology Review 1992; vol. 14 number 3, pp.1-2.
17. Woolf AD, Lovejoy FH: Principles and Techniques of Detoxification in Pediatric Critical Care eds. Fuhrman B.P. and Zimmerman J.J., The C.V. Mosby Co., St. Louis, 1992.
18. Woolf AD, Wynshaw-Boris A, Rinaldo P, Levy. HL. Intentional ethylene glycol poisoning presenting as an inherited metabolic disorder. J Pediatr 1992;120:421-424.
19. Woolf AD: Section 167: Poisonings and Drug Overdosage: Principles of Initial Management in Textbook of Emergency Medicine, 2nd edition, ed. May H:Little, Brown & Company 1992.

20. Woolf A, Wenger T, Smith TW, Lovejoy FH: Use of digoxin-specific Fab fragments for severe pediatric digitalis poisoning: report of a multi-center experience. *New Engl J Med*. 1992;326:1739-1744.
21. Woolf AD, Saperstein A, Forjuoh S: Poisoning prevention knowledge and practices of parents after a childhood poisoning incident. *Pediatrics* 1992;90:867-870.
22. Wright L, Alsap J, Garretson LK, Kind B, Sioris L, Woolf A: The OPQ: a proposed instrument for predicting poisoning accident recurrence in young children. *Int J Hum Toxicol* 1992;34:448-452.

ARTICLES IN PRESS

1. Anderson A, Shannon MW. Poisonings in Pediatric Intensive Care, Todres ID, Fugate JH, Ed. Little, Brown and Co. (in press).
2. Henretig F, Shannon MW. Toxicologic Emergencies in Textbook of Pediatric Emergency Medicine, 3rd Ed., Fleisher G, Ludwig S, Henretig, Ruddy R, Silverman B, Ed., Williams & Wilkins (in press).
3. Kassner JR, Maher TJ, Hull KM, Woolf AD: Cholestyramine as an adsorbent in acute poisoning: A murine model. *Ann Emerg Med* (in press).
4. Liebelt E, Shannon M. Small Doses, Big Problems: A Profile of Common, Highly Toxic Medications. *Ped Emerg Care* (in press).
5. Linakis JG, Lacouture PG, Woolf A: Monitoring cyanide and thiocyanate concentrations during infusion of sodium nitroprusside in children. *Pediatr Cardiol* (in press).
6. Linakis JG, Lacouture PG, Woolf AD: Iron absorption from chewable multivitamins with iron vs. ferrous fumarate tablets: implications for toxicity. *Pediatr Emerg Care* (in press).
7. Mofenson HC, Caraccio TR, Shannon MW. Acute Poisoning in Current Pediatric Therapy 14, Burg FD, Ingelfinger JR, Wald ER, Ed. WB Saunders (in press).
8. Shannon, MW. Fluoride, Inhalants, Caffeine, Sympathomimetics, Lead, Chloral Hydrate, MAO Inhibitors, Lomotil, Oral Hypoglycemics, Clonidine in Handbook of Common Poisonings in Children, American Academy of Pediatrics, Ed., 3rd Ed. (in press).
9. Woolf AD: Accidental Poisoning. *Pediatrics In Review* (in press).
10. Woolf AD, Lovejoy FH Jr: Digitalis in Human Toxicology ed. Pr Jacques Descotes, Elsevier Press, Amsterdam, The Netherlands (in press).
11. Woolf AD, Lovejoy FH Jr.: Epidemiology of Drug Overdose in Children. Drug Safety Adis International, Ltd, Auckland, New Zealand (in press).
12. Woolf AD, Saperstein A, Zawin J, Cappock R, Sue YJ: Radiopacity of household deodorizers, air fresheners, and moth repellents. *J Toxicol clin Toxicol* (in press).
13. Woolf AD: Toxicology in Textbook of Pediatrics, 2nd edition. eds. Avery ME, First L, Williams & Wilkins, Publishers (in press).
14. Woolf AD: Oxalates. Clinical Toxicology Review in press.

MASS. I.C. 1.1. 774

1994
Annual
Statistical
Report

GOVERNMENT DOCUMENTS
COLLECTION

NOV 14 1997

University of Massachusetts
Depository Copy

Massachusetts
Poison Control
System



September, 1995

Designated as the Regional Poison Information Center for Massachusetts by the Massachusetts Legislature, the Massachusetts Department of Public Health, and the American Association of Poison Control Centers.



Massachusetts Poison Control Center
300 Longwood Avenue
Boston, Ma 02115

EXECUTIVE SUMMARY

The Massachusetts Poison Control System (MPCS), founded in 1955 and regionalized for Massachusetts in 1978, continues to enjoy the support of both the state and the member institutions as a public-private partnership. Under the leadership of Commissioner David Mulligan and the Department of Public Health, the state provided 70% of the Poison Center's \$686,000 operating budget. The original six consortium institutions which organized the System: Boston City Hospital, New England Medical Center, Children's Hospital, the Massachusetts College of Pharmacy and Allied Health Sciences, Massachusetts General Hospital, and the University of Massachusetts Medical Center continue their support. Seventy-five member institutions, represented by the Massachusetts Hospital Association and the Massachusetts Association of Health Maintenance Organizations, provide the additional revenues needed to run the Poison Center. It is estimated that each poisoning consultation costs \$11.50. If no poison center existed, it is estimated that 63% of suspected ingestions would self refer to medical services as opposed to 13% self-referral and 10% poison center referral when the poison center exists. This translates into 17,600 excess medical visits (assume 80% emergency department at \$150/visit and 20% physician's office at \$60/visit) or \$2,300,000 in extra health care expenses. When subtracted from the poison center's budget, there was a savings of almost \$1,700,000 in unnecessary health expenditures in 1994 attributable to the existence of the Massachusetts Poison Center.

During 1994, the Poison Center received 38,288 poisoning-related telephone calls, with children under 5 years of age accounting for over 56% of the total. Total volume, including follow-up calls as well as informational inquiries, reached almost 74,200 calls. Most poisonings occurred in the home; however more than 13% of the calls to the Poison Center came from health care facilities such as hospitals and health centers. More than 4000 poisonings (almost 10%) were judged potentially severe or life-threatening; 21 deaths were reported.

Besides this tremendous volume of service, the MPCS continues to develop initiatives to prevent poisonings. New efforts at public education have been organized with the Museum of Science in Boston. Additionally telephone stickers and brochures were distributed through civic and health organizations. A new TDD telephone system has been installed to serve deaf and hearing-impaired clients. The System also seeks to improve poisoning management through an extensive program of professional education and research. More than 50 health professionals annually receive training at the Poison Center. Lectures and workshops in clinical toxicology were presented at over 20 health care institutions in the state in 1994. The MPCS is among the top U.S. poison centers in research productivity, with over 35 papers published or in press in 1994-95 alone. It has also developed a model fellowship program for training future toxicologists.

Massachusetts can be proud of its certified Poison Control System: a national leader in service, education, and research.

POISON CENTER FACTS AT A GLANCE

1. The Poison Center received 38,288 poisoning-related calls in 1994.
2. Children 2 years and younger accounted for 16,599 poisoning calls or almost 43% of the total.
3. The Poison Center also received 24,366 information calls; and specialists made 11,457 follow-up calls. Total telephone volume in 1994 was 74,111 incoming and outgoing calls. The high volume of total telephone activity has remained unchanged from the volume of 1993.
4. Operations at the Poison Center cost \$686,368 in Fy94 (July 1993 to June 1994) for direct expenses only. Of this budget, more than 90% was spent on personnel. The Poison Center expenses represent a cost of \$11.50 per poisoning call. The Poison Center accounted for \$1,700.000 savings in unnecessary health services utilization averted in Massachusetts in 1994.
5. There were 21 deaths related to poisoning reported to the Poison Center in 1994 (<0.06% total poisoning call volume).

STAFF

Director

Alan D. Woolf, M.D., M.P.H.

Assistant Director

Open

Staff Toxicologist

Michael Shannon, M.D., M.P.H.

Administrator

Anne Vaccaro

Administrative Secretary

Barbara J. Bennett

Coordinator, Public Education

Linda Softley

Clinical Fellows

Carl Baum, M.D.

Holly Perry, M.D.

Poison Center Consultant

Kim Pearson, M.D.

Off-Site Consultants

Rose Goldman, M.D.

John Graef, M.D.

Sam Lesko, M.D.

Allen A. Mitchell, M.D.

Lew Pepper, M.D.

Barbara Scolnick, M.D.

Arnold Soslow, M.D.

Chief Specialist, Poison Information

Judith Woodard-Jenkins, R.N., C.S.P.I.

Senior Specialists, Poison Information

Safiyya Mason, R.N., C.S.P.I.

Tom Quail, R.N., C.S.P.I.

Specialists, Poison Information

Anita Bijan, R.Ph., C.S.P.I.

Keith Christanthus, R.Ph.

Mary Winkels, Assistant

Kristine Cafferky, R.N., C.S.P.I.

MaryEllen Gevry, R.Ph.

Robert Hallisey, R.Ph.

David Gaigal, R.Ph., C.S.P.I.

Villiscient Puran, R.Ph.

Arlyne Saperstein, R.N., C.S.P.I.

Bette Pyne, R.N.

Virginia Fortin, R.N.

Mary Houlihan, R.N.

Cheryl Silva, R.N.

Adina Sheroff, R.N., C.S.P.I.

Mary McLaughlin, R.N.

William Partridge, R.N., C.S.P.I.

Sasy Salomon, Assistant

Chungshen Fang, R.Ph.

Noah Bell, CoOp Student

ADVISORY BOARD MEMBERS

Chair

Bob Masters, MD
BU School Pub Hlth
Hlth Serv Dep Rm A319
80 E. Concord Street
Boston, MA 02118
(617)638-5043

Louise Goyette
OEMS, Director
Officer of Emer Serv.
150 Tremont St. 2nd Floor
Boston, MA 02111
(617)727-8338

Peter Goldman, MD
Maxwell Finland Professor
of Clinical Pharmacology
Harvard School of Public Health
677 Huntington Avenue
Boston, MA 02115
(617)432-2260

Ron Kleinman, MD
Department of Pediatrics
Mass General Hospital
32 Fruit Street
Boston, MA 02114
(617)726-2930

Timothy Maher, PhD
Associate Professor
Mass College of Pharmacy
and Allied Health Sciences
179 Longwood Avenue
Boston, MA 02116
(617)732-2800

David G. Nathan, MD
Physician-in-Chief
The Children's Hospital
300 Longwood Ave
Boston, MA 02115
(617)355-7681

Cynthia Rogers
Dept. of Public Health
150 Tremont Street
Boston, MA 02116
(617)727-1246

Evan Charney, MD
Professor of Pediatrics
U Mass Medical Center
55 Lake Avenue North
Worcester, MA 01605
(617)636-7719

Deborah Klein-Walker
Dept. of Public Health
150 Tremont Street
Boston, MA 02116
(617)727-3372

Howard Spivak, MD
Associate Professor
Department of Pediatrics
New England Medical Center
171 Harrison Avenue
Boston, MA 02218
(617)956-5241

Ex officio
Alan D. Woolf, MD MPH
Director
Mass Poison Control System
300 Longwood Avenue
Boston, MA 02115
(617)355-6609

Ken Leary, Director
Reg. Affairs and
Quality Improvement
Mass Hospital Assoc.
5 New England Exec. Park
Burlington, MA 01803
(617)272-8000

Fred Lovejoy, MD
Assist. Physician-in-Chief
Department of Medicine
Children's Hospital
Boston, MA 02115
(617)355-6605

Courtney Hutzinger
Legislative Analyst
Mass HMO Association
Park Square Building
Boston, MA 02116
(617)523-3300

Linda Doctor
Dept. of Public Health
150 Tremont Street
Boston, MA 02116
(617)727-0945

Allen Mitchell, MD
Director,
Sloan Epidemiology Unit
Boston University
School of Medicine
1371 Beacon Street
Brookline, MA
(617)734-6006

Arnold Soslow, MD
Director, Corporate
Health Program
Metrowest Medical Center
115 Lincoln Street
Framingham, MA 01701
(508)383-1120

MEMBER AFFILIATES

Addison Gilbert Hospital
Anna Jaques Hospital
AT&T
Athol Memorial Hospital
Baystate Medical Center
Berkshire Medical Center
Beth Israel Hospital
Beverly Hospital
Boston VA Hospital
Boston Regional Medical Center
Boston City Hospital
Brigham & Women's Hospital
Brockton Hospital
Cambridge Hospital
Cape Cod Hospital
Carney Hospital
Charlton Memorial Hospital
Children's Hospital
Cooley Dickinson Hospital
Emerson Hospital
ENRM Veterans Hospital
Fairview Hospital
Fallon Healthcare Systems
Falmouth Hospital
Faulkner Hospital
Franklin Medical Center
Glover Memorial Hospital
Good Samaritans Medical Center
Harrington Memorial Hospital
Harvard University Health Services
Harvard Community Health Plan
Haverhill Municipal Hospital
Heywood Memorial Hospital
Hillcrest Hospital
Holy Family Hospital
Hubbard Regional Hospital
Jordan Hospital
Lahey Clinic Medical Center
Lawrence General Hospital
Lawrence Memorial Hospital
Lowell General Hospital
Malden Hospital
Marlborough Hospital
Martha's Vineyard Hospital
Mary Lane Hospital
Mass Eye & Ear Infirmary
Mass College of Pharmacy
Mass General Hospital
Mass Institute of Technology
McLean Hospital
Melrose-Wakefield Hospital
Metro-West Medical Center
Milford-Whitinsville Hospital
Milton Hospital
Morton Hospital & Medical Center
Mount Auburn Hospital
Nantucket Cottage Hospital
New England Deaconess hospital
New England Medical Center
New England Baptist Hospital
Newton-Wellesley Hospital
Noble Hospital
North Shore Medical Center
North Adams Regional Hospital
Norwood Hospital
Quincy Hospital
Saints Memorial Medical Center
Somerville Hospital
South Shore Hospital
Southwood Community Hospital
St. Elizabeth's Medical Center
St. Luke's Hospital, New Bedford
St. Vincent's Hospital
Symmes Hospital
Tufts University Medical School
U Mass Medical Center
Whidden Memorial Hospital
Winchester Hospital
Wing Memorial Hospital

INTRODUCTION

The Massachusetts Poison Control System, founded in 1955 and regionalized in 1978, is one of the oldest and most active poison centers in the United States. The original six consortium institutions which organized this system: the Boston City Hospital, Tufts University Medical School, the Children's Hospital, the Massachusetts College of Pharmacy and Allied Health Sciences, New England Medical Center, and the University of Massachusetts Medical School all continue their active support.

This, the seventeenth year of support by Member Institutions, saw 75 hospitals and health maintenance organizations contributing to the operating budget. The Member Institutions now contribute approximately 20% of the System's operating budget.

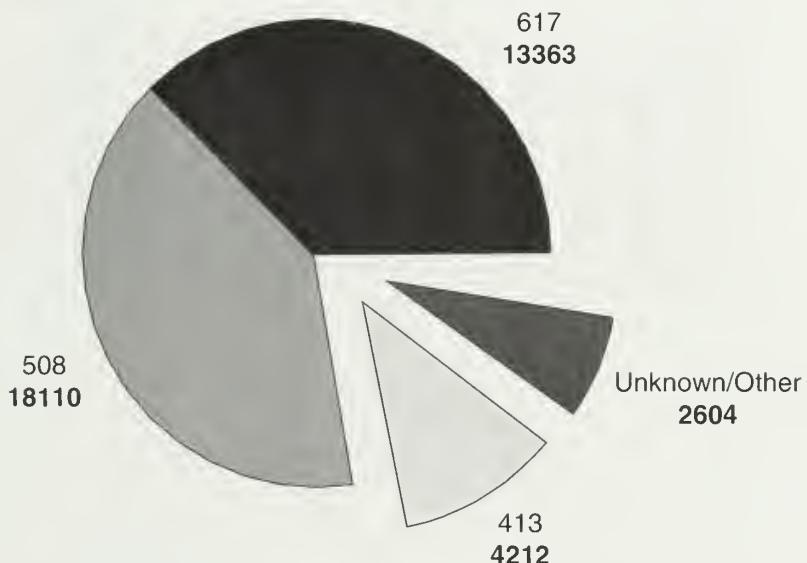
MISSION STATEMENT

The primary mission of the system continues to be that of providing the highest calibre of assistance and expertise in the medical diagnosis and management of poisoning cases involving the citizens of the Commonwealth of Massachusetts.

Additionally the MPCS seeks to improve the quality of medical care given to potentially poisoned patients by maintaining an unparalleled standard of excellence in both clinical research activities and professional education endeavors. Finally it is integral to the mission of the MPCS that it serve the Commonwealth as a lead agency in the development of innovative strategies to prevent unnecessary injuries due to intentional and unintentional poisonings and toxic exposures.

GEOGRAPHIC DISTRIBUTION

More than 62,654 poisoning-related exposure or inquiry calls were reported to the Massachusetts Poison Center in 1994, representing a decrease of 5.8% over the call volume in 1993. Within this total, there were 30,855(82%) exposure calls from the public and 7,433(18%) calls concerning poisoned patients being treated by health professionals (Total: 38,288 exposure calls). There were an additional 24,366 inquiry calls about poisons, where no exposure had taken place. Of the exposure calls only, 47.3% were from 508 area code, 34.9% from the 617 area code, 11.0% from the 413 area code, and 6.8% of calls were from unknown telephone numbers or from out of state.



Calls by Area Code

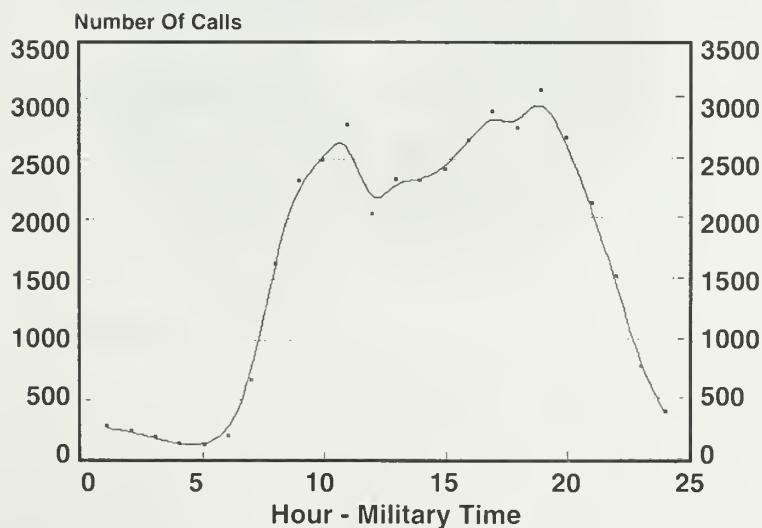
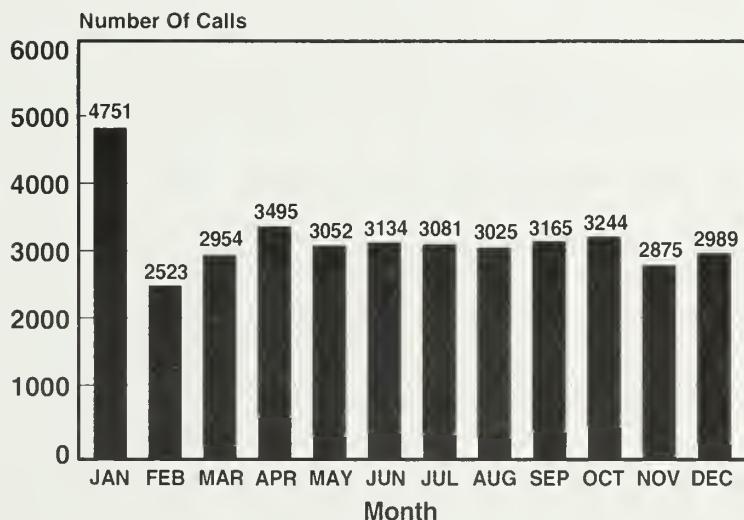
AGE & SEX

The peak ages for victims of poisoning are children 0-3 years old and adolescents 13-19 years old. While there was little gender difference among early childhood exposures, over 50% more female adolescents than male adolescents were involved in poisonings.

AGE (YEARS)	MALES	FEMALES	NON- SPECIFIED	TOTAL	%
<1	1180	1028	19	2227	5.8
1	3638	3001	29	6668	17.4
2	4176	3497	31	7704	20.2
3	2059	1693	11	3763	9.8
4	885	693	6	1584	4.1
5	482	333	6	821	2.2
6-12	368	1017	15	2400	6.3
13-19	1019	1680	28	2727	7.1
20-29	1239	1475	42	2756	7.2
30-39	1157	1384	36	2577	6.7
40-49	650	834	5	1489	3.9
50-59	307	458	2	767	2.0
60-69	206	272	0	478	1.2
> 70	207	436	1	644	1.7
Unknown	691	824	168	1683	4.4
Age					
TOTALS	19264	18625	399	38288	100%

CALL VOLUME CHARACTERISTICS

The largest volume of exposure calls was received during January; the least number during February. The exposure calls show a bionodal distribution for time of day with peak periods of calling frequency during 9:00-11:00 A.M. and 4:00-9:00 P.M. at night. By contrast, less than 5% of exposure calls were received between midnight and 7:00 A.M.

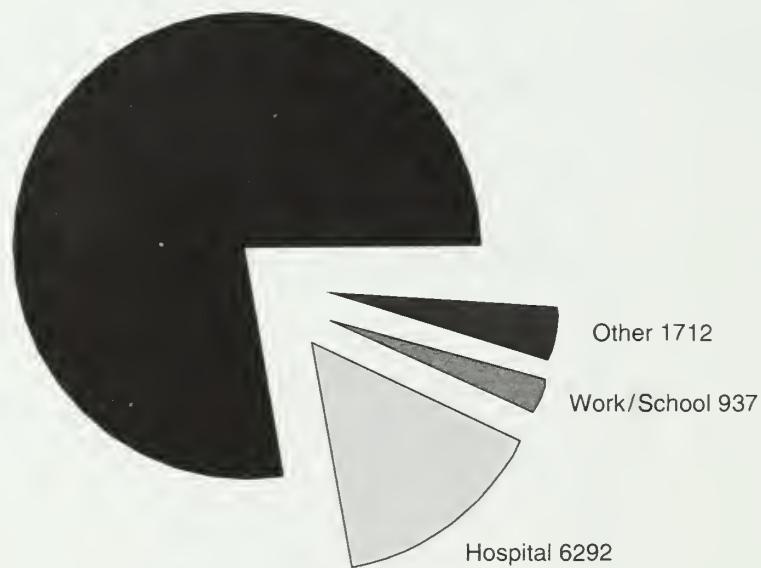


SITE OF CALLER

Over 90% of people seeking the Poison Center's advice for a potentially toxic exposure were calling from either a private residence or a health care facility.

CALLER SITE	NUMBER OF CALLS	% OF TOTAL
OWN RESIDENCE	28,280	73.9%
OTHER RESIDENCE	1,067	2.8%
HEALTH CARE FACILITY	6,292	16.4%
WORK PLACE	707	1.8%
SCHOOL	230	0.6%
PUBLIC AREA	228	0.6%
OTHER/UNKNOWN	1,484	3.9%
TOTALS	38,288	100%

Residence 29347

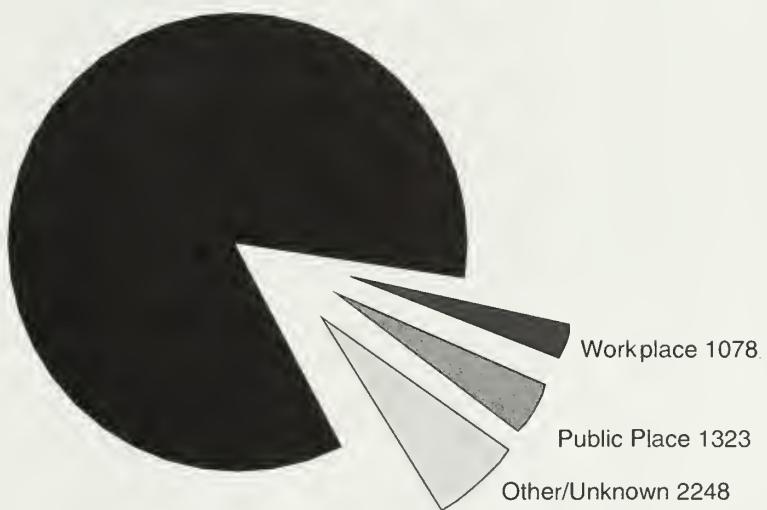


SITE OF EXPOSURE

The most frequent site of exposure to a potential toxin continues to be the victim's own residence. However the Poison Center also received an important number of calls concerning occupational exposures or exposures at schools or health care facilities as well.

SITE OF EXPOSURE	NUMBER	% OF TOTAL
OWN HOME	32,190	84.1%
OTHER RESIDENCE	1,449	3.8%
WORKPLACE	1,078	2.8%
SCHOOL	670	1.8%
OTHER PUBLIC AREA	473	1.2%
HEALTH CARE FACILITY	180	0.4%
OTHER/UNKNOWN	2,248	5.9%
TOTALS	38,288	100%

Residence 33639



CALLERS PUBLIC

The Poison Center received 30,855 poisoning-related calls from the general public. There were 4,609 calls in which the town of the caller was not identified by area code or where were made from outside Massachusetts. The 26,246 calls from more than 275 cities and towns have been tabulated. For some towns (East Longmeadow/Longmeadow; Stockbridge/West Stockbridge; Reading/North Reading; Adams/North Adams; Attleboro/N & S Attleboro) the populations and call frequencies were collapsed. Calls were received in 1994 from the following cities and towns:

AREA CODE 508 - 13,485 POISONING CALLS FROM GENERAL PUBLIC

NUMBER	RANK	TOWN	CALLS	PENETRATION RATE*
1	1	WORCESTER/AUBURN	828	4.5
2	2	NEW BEDFORD	574	5.7
3	3	BROCKTON	516	5.6
4	4	LAWRENCE	473	6.8
5	5	FALL RIVER	460	5.0
6	6	LOWELL	429	4.2
7	7	ATTLEBORO	397	6.2
8	8	TAUNTON	343	6.9
9	9	HAVERHILL	279	5.4
10	10	FRAMINGHAM	262	4.0
11	11	PEABODY	247	5.3
12	12	BILLERICA	221	5.9
13	13	MILFORD	217	8.6
14	14	BEVERLY	194	5.1
15	15	FITCHBERG	187	4.5
16	16	MARLBORO	185	5.8
17	17	SALEM	182	4.8
18	18	NATICK	181	5.9
19	19	PLYMOUTH	154	3.4
20	20	FRANKLIN	153	6.9
21	21	NEWBURYPORT	146	9.0
22	22	DENNIS	140	10.1
23	23	MIDDLEBORO	139	7.8
24	24	HYANNIS	138	3.5
25	25	LEOMINSTER	134	3.5
26	26	ACTON	132	7.4
27	27	DANVERS	131	5.4
28	28	WILMINGTON	128	7.3
29	28	BRIDGEWATER	128	6.0
30	29	MANSFIELD	121	7.3
31	30	CHELMSFORD	120	3.7
32	31	SAGAMORE	115	NA
33	32	ANDOVER	112	3.8
34	32	FALMOUTH	112	4.0
35	33	GLOUCESTER	108	3.8
36	34	AMESBURY	106	7.1
37	35	OSTERVILLE	104	NA
38	36	WESTFORD	103	6.3

CALLERS PUBLIC

NUMBER	RANK	TOWN	CALLS	PENETRATION RATE*
39	37	WAREHAM	102	5.3
40	38	TEWKSURY	99	3.6
41	38	MILBURY	99	8.1
42	39	ASHLAND	97	8.0
43	40	GARDNER	95	4.7
44	41	MANOMET	93	NA
45	42	SHREWSBURY	92	3.8
46	43	EASTON	91	4.6
47	44	CONCORD	86	5.0
48	45	SOUTHBRIDGE	84	4.7
49	45	HUDSON	84	4.9
50	46	GRAFTON	82	6.3
51	47	WEBSTER	80	4.9
52	48	NORTHBORO	80	6.7
53	49	AYER	79	11.5
54	49	SUDBURY	79	5.5
55	50	WALPOLE	77	3.8
56	50	BUZZARDS BAY	77	NA
57	51	CLINTON	76	5.7
58	52	HARWICH	74	7.2
59	53	HOPKINTON	73	7.9
60	53	WHITINSVILLE	73	NA
61	54	FOXBORO	70	4.8
62	55	OXFORD	68	5.4
63	56	TOPSFIELD	66	11.5
64	57	HAMILTON	65	8.9
65	57	VINEYARD HAVEN	65	NA
66	58	WESTBORO	64	4.5
67	59	ATHOL	63	5.5
68	60	CARVER	62	5.9
69	61	DRACUT	61	2.4
70	62	MAYNARD	60	5.8
71	63	IPSWICH	59	5.0
72	63	MEDWAY	59	5.9
73	63	GROTON	59	7.9
74	64	HOLLISTON	58	4.5
75	64	PEPPERELL	58	5.7
76	64	MEDFIELD	58	5.5
77	65	BLACKSTONE	56	7.0
78	65	ORLEANS	56	9.6
79	66	NORTON	55	3.9
80	66	GEORGETOWN	55	8.6
81	66	N. BROOKFIELD	55	7.3
82	67	LEOMINSTER	54	1.4
83	68	TYNGSBORO	53	6.1

CALLERS PUBLIC

NUMBER	RANK	TOWN	CALLS	PENETRATION RATE*
84	68	SPENCER	53	4.6
85	68	BELLINGHAM	53	3.6
86	68	HOLDEN	53	3.6
87	68	CATUMET	53	NA
88	69	READING	51	1.5
89	69	BARNSTABLE	51	1.3
90	70	UXBRIDGE	49	4.7
91	71	MILLIS	48	6.3
92	72	LITTLETON	47	6.7
93	73	MANCHESTER	46	8.6
94	74	TOWNSEND	46	5.4
95	75	LEICESTER	44	4.3
96	75	BREWSTER	44	5.2
97	75	BOYLSTON	44	12.5
98	75	WRENTHAM	44	4.9
99	76	WINCHENDON	43	4.9
100	77	LUNENBERG	42	4.6
101	78	ORANGE	41	5.6
102	79	CHARLTON	39	4.1
103	80	NANTUCKET	38	6.3
104	81	MERRIMAC	37	7.2
105	82	WESTPORT	36	2.6
106	82	STERLING	36	5.6
107	83	STURBRIDGE	35	4.5
108	84	ROCHESTER	34	8.7
109	85	CHATHAM	33	5.0
110	85	WAYLAND	33	2.8
111	86	RUTLAND	32	6.9
112	87	MARION	31	6.9
113	87	WESTMINSTER	31	5.0
114	88	ROCKPORT	30	4.0
115	89	TEMPLETON	29	4.5
116	90	EDGARTOWN	29	9.5
117	91	MASHPEE	27	3.4
118	91	MATTAPoisETT	27	4.6
119	91	DOVER	27	5.5
120	92	ASHBURNHAM	26	4.8
121	92	WELFLEET	26	10.4
122	93	WEST NEWBURY	22	6.4
123	94	DIGHTON	21	3.7
124	95	SEEKONK	20	1.5
125	96	BARRE	19	4.2
126	96	ROWLEY	19	4.3
127	97	HUBBARDSTON	18	6.4
128	98	PROVINCETOWN	17	4.8

CALLERS PUBLIC

NUMBER	RANK	TOWN	CALLS	PENETRATION RATE*
129	98	SHIRLEY	17	2.8
130	98	HARVARD	17	1.4
131	99	ASHBY	15	5.5
132	100	ASSONET	14	NA
133	100	BOLTON	14	4.5
134	100	REHOBOTH	14	1.6
135	100	PRINCETON	14	4.4
136	101	ESSEX	13	4.0
137	102	OAKHAM	10	6.7
138	103	CHILMARK	8	12.3
139	104	BERLIN	7	3.1
140	105	SWANSEA	3	0.2
141	105	SIASCONET	3	NA
142	106	PETERSHAM	2	1.8

TOTALS 13485

AREA CODE 413 - 3259 POISONING CALLS FROM GENERAL PUBLIC

NUMBER	RANK	TOWN	CALLS	PENETRATION RATE*
1	1	SPRINGFIELD	681	4.3
2	2	HOLYOKE	312	7.1
3	3	PITTSFIELD	215	4.4
4	4	WESTFIELD	151	3.9
5	5	NORTHAMPTON	138	4.7
6	6	CHICOPEE	128	2.3
7	7	AMHERST	121	3.4
8	8	ADAMS/NORTH ADAMS	118	6.3
9	9	GREENFIELD	115	6.2
10	10	LUDLOW/INDIAN ORCHARD	114	6.1
11	11	AGAWAM	109	4.0
12	12	LONGMEADOW (+EAST)	94	3.2
13	13	EASTHAMPTON	79	5.1
14	14	BELCHERTOWN	66	6.2
15	15	WILBERHAM	64	5.1
16	16	PALMER	59	4.9
17	17	WARE	54	5.5
18	18	GREAT BARRINGTON	38	4.9
19	19	BRIMFIELD	37	12.3
20	20	SOUTHWICK	35	4.6
21	21	MONSON	34	4.4
22	22	LEE	33	5.7
23	23	HAMPDEN	32	6.8
24	23	TURNERS FALLS	32	NA

CALLERS PUBLIC

NUMBER	RANK	TOWN	CALLS	PENETRATION RATE*
25	24	DEERFIELD	29	5.8
26	24	DALTON	29	4.1
27	25	SHEFFIELD	28	9.6
28	26	WILLIAMSTOWN	26	3.2
29	26	WARREN	26	5.9
30	27	GILBERTVILLE	22	NA
31	28	NORTHFIELD	20	7.1
32	29	LENOX	19	3.8
33	30	STOCKBRIDGE	18	4.6
34	31	SHELBOURNE FALLS	16	NA
35	32	CUMMINGTON	15	19.1
36	32	HINSDALE	15	7.7
37	33	GRANBY	14	2.5
38	34	MONTAGUE	13	1.6
39	35	COLRAIN	11	6.3
40	35	HATFIELD	11	NA
41	36	HUNTINGTON	10	5.0
42	36	BECKET	10	6.8
43	36	HEATH	10	13.9
44	37	CONWAY	9	5.9
45	38	ASHFIELD	8	4.7
46	38	RICHMOND	8	4.8
47	39	BLANDFORD	7	5.9
48	39	RUSSELL	7	6.1
49	39	CHARLEMONT	7	0.7
50	39	GRANVILLE	7	5.0
51	39	BERNARDSTON	7	3.4
52	39	WILLIAMSBURG	7	2.8
53	40	OTIS	5	4.7
54	40	CHESTERFIELD	5	4.8
55	41	SANDISFIELD	4	6.0
56	41	MILLERS FALLS	4	NA
57	42	WORTHINGTON	3	2.6
58	43	CHESTER	2	1.6
59	44	MONROEBRIDGE	1	NA
60	44	HANCOCK	1	1.6

TOTALS 3259

AREA CODE 617:9,502 POISONING CALLS FROM GENERAL PUBLIC

NUMBER	RANK	TOWN	CALLS	PENETRATION RATE*
1	1	BOSTON	1067	3.5
2	2	DORCHESTER	384	**

CALLERS PUBLIC

3	3	LYNN	373	4.6
4	4	QUINCY	369	4.3
5	5	BROOKLINE	316	5.8
6	6	CAMBRIDGE	298	3.1
7	7	NEWTON	293	3.6
8	8	WEYMOUTH	292	5.4
9	9	SOMERVILLE	261	3.4
10	10	WALTHAM	260	4.5
11	11	MEDFORD	250	4.4
12	12	MALDEN	248	4.6
13	13	WEST ROXBURY	230	**
14	14	REVERE	199	4.7
15	15	ROCKLAND	193	12.0
16	16	ARLINGTON	187	4.2
17	17	DEDHAM	181	7.6
18	18	EVERETT	164	10.2
19	19	NORWOOD	158	5.5
20	20	WOBURN	157	4.4
21	21	WELLESLEY	148	5.6
22	22	WAKEFIELD	142	5.7
23	23	BURLINGTON	141	6.1
24	23	SOUTH BOSTON	141	**
25	24	MARSHFIELD	140	8.5
26	24	BELMONT	140	5.7
27	25	NEEDHAM	134	4.9
28	25	BRYANTVILLE	134	NA
29	26	MELROSE	133	4.7
30	27	BRAINTREE	130	3.8
31	28	SAUGUS	127	5.0
32	29	BRIGHTON	118	**
33	30	WINCHESTER	113	5.6
34	31	STOUGHTON	108	4.0
35	32	LEXINGTON	107	3.7
36	33	HINGHAM	104	5.3
37	34	READING	98	4.4
38	35	CHELSEA	96	3.3
39	36	STONEHAM	95	4.3
40	37	MARBLEHEAD	93	4.7
41	38	SHARON	90	5.8
42	39	WATERTOWN	87	2.6
43	40	CANTON	86	4.6
44	40	RANDOLPH	86	2.9
45	41	KINGSTON	85	9.4
46	42	BEDFORD	82	6.3
47	43	MILTON	75	2.9
48	44	WINTHROP	68	3.8
49	45	WHITMAN	66	5.0
50	46	HANOVER	63	5.3

CALLERS PUBLIC

51	47	CHARLESTOWN	54	**
52	48	HOLBROOK	52	4.7
53	49	HULL	49	4.7
54	50	LYNNFIELD	45	4.0
55	51	SCITUATE	42	2.5
56	52	LINCOLN	40	5.2
57	53	DUXBURY	39	2.8
58	54	COHASSET	33	4.7
59	55	NORWELL	30	3.2
60	56	GLOUCESTER	8	

TOTALS 9502

*Penetration Rate = Number of Calls per 1000 Population (source of city and town population figures is 1990 US Census)

**Combined with Boston catchment area

CALLES - HEALTH PROFESSIONALS

The Poison Center received 7433 calls (18% of the total) from over 112 hospitals and many other types of health-related institutions within Massachusetts in 1994. Besides hospitals, other large clients of the Poison Control System included The Fallon Clinic, Harvard Community Health Plan, East Boston Health Center, and the Chelsea satellite of the MGH. Physicians' offices, health centers, walk-in clinics, mental health facilities, nursing homes, correctional institutions, and homes for the retarded were other important users of poison center services.

NUMBER	RANK	CALLS	HOSPITAL
1	1	183	BROCKTON
2	2	175	CHILDREN'S HOSPITAL
3	3	171	BETH ISRAEL
4	4	165	CAMBRIDGE
5	5	161	BOSTON CITY HOSPITAL
6	6	140	BAYSTATE
7	7	130	HALE MUNICIPAL
8	8	125	ST. LUKE'S NEW BEDFORD
9	9	119	MASS GENERAL HOSPITAL
10	10	101	LAWRENCE GENERAL
11	11	97	SOUTH SHORE
12	12	95	WINCHESTER
13	13	94	WHIDDEN MEMORIAL
14	14	90	ST. ELIZABETH'S
15	15	88	HOLY FAMILY
16	16	86	NORTH SHORE CHILDREN'S HOSPITAL
17	17	85	HENRY HEYWOOD
18	18	79	CARNEY
19	19	78	SALEM
20	19	78	JORDAN
21	20	76	GODDARD MEMORIAL HOSPITAL
22	21	75	METROWEST (FRAMINGHAM)
23	22	72	QUINCY
24	23	68	SOMERVILLE HOSPITAL
25	24	67	BRIGHAM & WOMEN'S HOSPITAL
26	25	66	NORWOOD
27	26	61	MORTON HOSPITAL
28	27	60	MELROSE-WAKEFIELD
29	28	59	BERKSHIRE MEDICAL CENTER
30	29	57	DEACONESS HOSPITAL
31	30	56	ANNA JAQUES
32	30	56	MILTON
33	30	56	CAPE COD
34	30	56	MALDEN
35	31	55	FAULKNER
36	32	54	MERCY
37	32	54	ADDISON GILBERT
38	32	54	ATHOL MEMORIAL
39	33	53	DEACONESS NASHOBA

CALLERS - HEALTH PROFESSIONALS

NUMBER	RANK	CALLS	HOSPITAL
40	34	51	HARRINGTON HOSPITAL
41	35	52	ST. VINCENT'S
42	36	50	CHARLTON MEMORIAL
43	36	50	LOWELL GENERAL
44	37	49	MT. AUBURN
45	38	47	FRANKLIN MEDICAL CENTER
46	39	45	HUBBARD REGIONAL
47	40	44	MILFORD-WHITINSVILLE
48	40	44	ST. JOHN'S
49	41	43	NEW ENGLAND MEDICAL CENTER
50	41	43	NOBLE
51	41	43	LYNN UNION
52	42	40	LAHEY CLINIC
53	43	39	PROVIDENCE
54	44	38	ST. JOSEPH'S
55	44	38	SYMMES
56	45	37	FALMOUTH MEDICAL CENTER
57	46	35	BOSTON REGIONAL MEDICAL CENTER
58	47	34	METROWEST (NATICK)
59	48	30	MARY LANE
60	48	30	BEVERLY
61	49	29	MARLBOROUGH
62	49	29	HOLYOKE
63	50	27	NORTH ADAMS REGIONAL
64	51	25	LAWRENCE MEMORIAL
65	51	25	ST. ANNE'S
66	52	24	WING MEMORIAL
67	53	23	COOLEY DICKINSON
68	53	23	DEACONESS
69	54	22	BOSTON UNIVERSITY
70	55	21	EMERSON
71	55	21	HUNT MEMORIAL
72	55	21	SOUTHWOOD
73	56	20	CLINTON
74	57	19	LUDLOW
75	58	17	BOSTON VA
76	58	17	NEWTON-WELLESLEY
77	59	15	HILLCREST
78	60	14	WORCESTER MEMORIAL
79	60	14	BURBANK
80	60	14	GOOD SAMARITAN
81	61	13	BOSTON FLOATING
82	61	13	TOBEY
83	62	12	CABLE MEMORIAL
84	62	12	NANTUCKET COTTAGE
85	62	12	GLOVER MEMORIAL

CALLERS - HEALTH PROFESSIONALS

NUMBER	RANK	CALLS	HOSPITAL
86	62	12	MARTHA'S VINEYARD
87	62	12	STURDY MEMORIAL
88	63	11	WORCESTER HAHNEMANN
89	64	10	JAMAICA PLAIN (VA)
90	63	11	FAIRVIEW
91	63	11	WINTHROP COMMUNITY
92	65	8	U. MASS MEDICAL CENTER
93	66	7	JB THOMAS
94	66	7	LEOMINSTER
95	66	7	WHITINSVILLE
96	66	7	ATLANTICARE
97	66	7	WILMINGTON REGIONAL
98	67	6	LEMUEL SHATTUCK
99	68	4	AMESBURY
100	68	4	BEDFORD VA
101	68	4	WEST ROXBURY VA
102	69	3	SPRINGFIELD
103	69	3	HANSCOMB AFB
104	69	3	HAHNEMANN
105	70	2	NORTHAMPTON VA
106	70	2	CUSHING
107	71	1	CUTLER ARMY
108	71	1	FRANCISCAN CHILDREN'S
109	71	1	MA EYE & EAR INFIRMARY
110	71	1	NEW ENGLAND BAPTIST
111	71	1	WINCHENDON
112	71	1	SHRINER'S BURN UNIT
		25	OTHER
TOTALS		5002	

CALLERS - HEALTH PROFESSIONALS

The Poison Center also received a number of calls from medical clinics and health maintenance organizations in 1994 including:

CLINIC	# OF CALLS	% OF TOTAL
PHYSICIANS' OFFICES	579	54
HEALTH CENTERS	221	21
HARVARD COMMUNITY HEALTH PLAN	126	12
FALLON CLINIC	64	6
EAST BOSTON HEALTH CENTER	36	3
HARVARD U. HEALTH SERVICES	14	1
MGH-CHELSEA SATELLITE CLINIC	14	1
U MASSACHUSETTS-AMHERST	8	1
MIT INFIRMARY	6	1
TUFT'S U. HEALTH CENTER	2	<1
STILLMAN INFIRMARY	1	<1
 TOTALS	1071	100%

Other calls come from a variety of other types of facilities and health care providers, accounting for 1178 of the calls from health professionals in 1994.

FACILITY	# OF CALLS	% OF TOTAL
SCHOOLS/CORRECTIONAL FACILITIES	419	36
MENTAL HEALTH PROGRAMS	255	22
AMBULANCES	191	16
NURSING HOMES	155	13
FACILITIES FOR RETARDED/AUTISTIC	105	9
PHARMACISTS	27	2
SHELTERS	25	2
SOLOMAN CARTER HEALTH CENTER	1	<1
 TOTALS	1178	100%

CALLERS - HEALTH PROFESSIONALS

The Massachusetts Poison Center also is occasionally consulted by out-of-state health facilities or other sites on selected cases of poisoning:

FACILITY	# OF CALLS	% OF TOTAL
New Hampshire Memorial Hospital	53	29
Concord Hospital (NH)	48	26
Elliot Hospital (NH)	9	5
Catholic Medical Center (NH)	6	3
Exeter Hospital (NH)	3	2
Parkland Hospital (NH)	3	2
New Hampshire Hospital	2	1
Springfield Hospital (Vermont)	2	1
Eastern Maine Medical Center	1	<1
Cottage Hospital (NH)	1	<1
Hitchcock Memorial Hospital (NH)	1	<1
Franklin Regional Hospital (NH)	1	<1
Goodall Hospital (Maine)	1	<1
Portsmouth Hospital (NH)	1	<1
Medical Center of Vermont	1	<1
Franklin County Hospital (Maine)	1	<1
Other Hospitals-Out of State	38	20
Other Poison Centers	2	1
Other Hotlines	11	5.5
 TOTALS	182	100%

AGENTS INVOLVED

A total of 38,288 agents were listed as first toxins implicated in the poisoning calls taken in 1994. Of these 9,405 pharmaceutical and 12,652 other agents were identified by code and ranked by frequency.

A. PHARMACEUTICALS

RANK	DRUG	FREQUENCY	%
1	ACETAMINOPHEN	1825	19.4
2	COUGH/COLD PREPARATIONS	827	8.8
3	OINTMENTS/PERSONAL CARE	769	8.2
4	NS ANTI-INFLAMMATORY drugs	682	7.3
5	ANTI-HISTAMINES	669	7.1
6	VITAMINS	597	6.3
7	BENZODIAZEPINES	544	5.8
8	SALICYLATES	430	4.6
9	ANTI-DEPRESSANTS	396	4.2
10	ANTI-MICROBIALS	338	3.6
11	OTHER/UNKNOWN DRUGS	242	2.6
12	NARCOTICS	230	2.4
13	ANTACIDS/GI PREPARATIONS	208	2.2
14	HORMONES	192	2.0
15	CARBAMAZEPINE	127	1.4
16	COCAINE/AMPHETAMINES	121	1.3
17	LITHIUM	116	1.2
18	CAFFEINE	113	1.2
19	CATHARTICS	111	1.2
20	PHENOTHIAZINES	105	1.1
21	ENT PREPARATIONS	100	1.1
22	MUSCLE RELAXANTS	75	0.8
23	BARBITURATES	59	0.6
24	CALCIUM CHANNEL BLOCKERS	56	0.6
25	PHENYTOIN	54	0.6
26	THEOPHYLLINE	52	0.6
27	CARDIOVASCULAR DRUGS	50	0.5
28	BETA BLOCKERS	46	0.5
29	ANTI-CHOLINERGIC AGENTS	41	0.4
30	OTHER SEDATIVES	40	0.4
31	SUBSTANCES OF ABUSE/OTHER	39	0.4
32	ANTI-CONVULSANTS	37	0.4
33	DIGITALIS	35	0.4
34	ANESTHETICS	24	0.3
35	DIURETICS	19	0.2
36	ISONIAZID	12	0.1
37	MAO INHIBITORS	7	<0.1
38	L-DOPA	6	<0.1
39	ALKALOID ERGOTS	6	<0.1
40	ANTI-COAGULANTS	3	<0.1
41	COLCHICINE	1	<0.1
42	DAPSONE	1	<0.1
	TOTALS	9,405	100%

AGENTS INVOLVED

There were 12,652 non-pharmaceutical agents implicated in toxic exposures that were ranked by frequency and category:

B. NON-PHARMACEUTICALS

RANK	TOXIN	NUMBER OF CALLS	% OF TOTAL
1	PLANTS	1382	10.9
2	COSMETICS/PERSONAL CARE	1119	8.8
3	SOAP/DETERGENTS	920	7.3
4	HYDROCARBON	817	6.4
5	MISC. CHEMICALS	590	4.7
6	BLEACH	515	4.1
7	INKS, PAINT SUPPLIES	483	3.8
8	FOREIGN BODY, BATTERY	459	3.6
9	HOUSEHOLD CLEANERS	446	3.5
10	ISOPROPANOL	431	3.4
11	FOOD POISONING	367	2.9
12	ALKALI CAUSTICS	365	2.9
13	TOYS/SPORTING EQUIPMENT	351	2.8
14	CARBON MONOXIDE/GASES	327	2.6
15	ETHANOL	305	2.4
16	TOBACCO/NICOTINE	297	2.3
17	GLUES/PASTE	247	2.0
18	MOTHBALLS/DEODORIZERS	230	1.8
19	ACID CAUSTICS	221	1.7
20	PESTICIDES	211	1.7
21	MUSHROOMS	208	1.6
22	SALT/MINERALS	170	1.3
23	SILICA	169	1.3
24	POWDERS/TALC	161	1.3
25	LEAD/HEAVY METALS	155	1.2
26	GYLCOLS	153	1.2
27	FERTILIZERS	138	1.1
28	CONSTRUCTION MATERIALS	136	1.1
29	INSECT STINGS	131	1.0
30	OFFICE SUPPLIES	123	1.0
31	THERMOMETERS	119	0.9
32	FLUORIDE	115	0.9
33	ORGANOPHOSPHATE/CARBAMATE	103	0.8
34	FREON	101	0.8
35	CAMPHOR	89	0.7
36	RODENTICIDE	85	0.7
37	METHANOL	63	0.5
38	FIRE EXTINGUISHERS	50	0.4
39	MATCHES	43	0.3
40	WATER	34	0.3
41	SPIDER BITES	33	0.3
42	TCE/SOLVENTS	30	0.2
43	LACRIMATORS	29	0.2

AGENTS INVOLVED

44	ESSENTIAL OILS	28	0.2
44	SNAKES	28	0.2
45	TOOTHPASTE	17	0.1
45	HOUSEHOLD/OTHER	17	0.1
46	OTHER BITES/STINGS	16	0.1
47	FORMALIN/FIXTURES	15	0.1
48	HERBICIDES	8	<0.1
49	KETONES	2	<0.1
	TOTALS	12,652	100%

DEATHS

There were 21 deaths recorded by the poison center in 1994, 9 males and 12 females. While the deaths were distributed throughout the year fairly evenly, August, and October were high with 4 deaths recorded during each month. All but two of the deaths involved adults 21 years or older. Deaths of children included that of a 2 year old female (out-of-state referral) who evidently vomited after a clozaril ingestion, aspirated, and died of ensuing respiratory failure and pulmonary complications. A 15 year old adolescent woman who became comatose after use of phencyclidine and amphetamines died of a progressive encephalopathy related to a bacterial meningitis. Twenty-two different chemicals or drugs were cited as associated with 20 of these deaths. In one death, acute respiratory failure was the cause of death but no toxin had been identified as causative. Note that citation of a drug or chemical does not necessarily imply that these agents were the cause of death. Also multiple agents were sometimes associated with a single case. Medications were involved in the majority of these deaths.

Agents (Number Of Cases Shown In Brackets):

Acetaminophen	Lithium
Amphetamine	Methanol
Atenolol	Opiate (2)
Benzopazepine	Phencyclidine (2)
Butane	Phenobarbital
Carbamezepine	Phenothiazines (2)
Caustic	Phenytoin
Clozaril	Pimozide
Cocaine (2)	Tricyclic Antidepressants (5)
Digitalis	Verapamil
Diphenhydramine (2)	
Ethanol (2)	

PUBLIC EDUCATION

The System continues to develop new approaches to educating the general public about poisoning prevention. Decentralization of materials and information has continued to be the major mode of Education. This year's efforts were conducted most capably by Ms. Linda Softley, Chair of The Subcommittee on Public Education and Coordinator of Education.

Poison Prevention Week in March, 1994, was met with a thoroughly statewide approach in increasing public awareness via press releases and media interviews. As a focus, System experts and volunteers collaborated with the Boston Museum of Science in a poisoning prevention project aimed at demonstrating the more commonly encountered poisons and the ways in which they can affect the human body.

The system continues to meet its public education goals with a variety of activities. Seasonal and holiday related poisoning prevention announcements have been distributed to the media as a public service on a regular basis. Additionally over 58,900 telephone stickers and 13,129 poison center brochures were distributed throughout the state in 1994. New outreach initiatives include a prevention intervention aimed at homeless families living in public shelters. Another includes the development of more effective educational materials with respect to plant toxicity and pesticides.

A concentration upon targeting more effective media outreach has produced new contacts and increased coverage of important poisoning issues. TV coverage has included: channel 7 -Healthwatch; channel 5; news features; Neighborhood Network News.

“Carbon Monoxide (CO) Poisoning and its prevention” was the chosen focus of attention throughout the winter. Hundreds of calls related to exposure to carbon monoxide were forwarded to the Public Educator for management. As a result of this activity, the possibility of collaborative EPA/MPCS grant for education in carbon monoxide poisoning prevention is being explored. An education grant to embrace all aspects of a more effective public education outreach initiative is also being explored.

Presentations to various community groups and organizations in 1994 included:

Audience	Location
General Public	Museum of Science, Boston
Emergency Medical Technicians	Taunton
Emergency Medical Technicians	Dalton
Parents	Local Health Fairs
Boston Edison Employees	Boston
Boston Gas Co Employees	Boston
Emergency Medical Technicians	Boston Area

PROFESSIONAL EDUCATION & RESEARCH

Staff at the Poison Center continue to provide leadership in the education of health professionals in clinical toxicology here in Massachusetts as well as nationally.

Clinical Toxicology Review (CTR): Now its seventeenth year of publication, the monthly update of the Poison Center, Clinical Toxicology Review, has distributed over 18 volumes comprising over 200 individual issues. Our mailing list for CTRs continues to expand internationally; subscriptions are still free to member hospitals and health maintenance organizations within Massachusetts.

Postgraduate Education Outreach: Poison Center staff have been active in providing continuing education lectures and courses for physicians, nurses, pharmacists, emergency medical technicians, and health policy makers. Off-site training seminars, grand rounds, and other educational formats were provided at the following institutions in 1994:

Children's Hospital
Boston-Area EMTs
Lawrence General Hospital
Holy Family Hospital
Massachusetts General Hospital
The Cambridge Hospital
Littleton-Area EMT's
Addison-Gilbert Hospital

Deaconess Hospital
Metrowest-Framingham
Carney Hospital
Massachusetts College of Pharmacy
North Shore Children's Hospital
Beth Israel Hospital
Norwood Hospital
Baystate Medical Center

Poison-Center Sponsored Courses: The Poison Center has regularly sponsored programs dedicated to updating health professionals concerning specific topics in toxicology. Most recently, the Massachusetts Poison Center, in conjunction with the Environmental Protection Agency and the Boston Gas Company, collaborated with the Poison Center to produce a program on carbon monoxide poisoning entitled "Airborne Toxins: Clinical Advances" which was presented twice in June of 1994.

Physician Training: The Poison Center continues to serve as a training site for health professionals. Both pediatric and adult emergency medicine residents from Boston City Hospital include a one month experience at the Poison Center among their rotations. Pediatric residents and emergency medicine fellows from Children's Hospital continue to join us on elective one-month rotations. Additionally the Poison Center has developed a close collaboration with the newly inaugurated toxicology fellowship training program at the University of Massachusetts Medical Center in Worcester. Dr. Robert Fern is the director of the fellowship training program. Dr. Robert Dowsett, UMMC's first fellow, spent more than three months in 1994 working on various service and research projects at the Poison Center. The Poison Center continues to welcome guests from other states and internationally who wish to train in clinical toxicology.

Fellowship Training: The Poison Center, in collaboration with the Departments of Emergency Medicine and General Pediatrics at Children's Hospital, continues to provide a 3-year fellowship in medical toxicology. This is a highly competitive, sought-after position for physicians-in-training nationwide and qualifies the physician to become board-certified toxicologist. Dr. Erica Leibelt completed fellowship training in 1994 and is affiliated with the Department of Pediatrics, Yale University, New Haven, Ct. Carl Baum and Holly Perry are the current toxicology fellows. Dr. Robert Wright will begin fellowship training in July, 1995.

EMT Training: A new training program for Massachusetts Emergency Medical Technicians has been developed by Tom Quail, RN, Specialist in Poison Information. EMT's from throughout Massachusetts will register for a half-day on-site training experience in the Poison Center supervised by senior staff. EMT's can receive up to 4 hours of continuing education units for completion of this course.

PROFESSIONAL EDUCATION & RESEARCH

Research: The Poison Center continues to initiate new research endeavors into many different areas of clinical toxicology including epidemiology, diagnosis, management, and the prevention of poisonings. thirteen research abstracts were presented at the annual scientific meeting of the American Association of Poison Control Centers in Salt Lake City in September. Topics included:

1. Gastrointestinal Corrosive Injury Due to Ingestion of Methacrylic Acid. Dowsett R. Woolf A.
2. Strychnine Poisoning From the Use of a Cambodian Traditional Remedy. Woolf A. Prescott K. Katz J.
3. Clinical Efficacy of d-Penicillamine vs. DMS in Low-level Childhood Plumbism (LLCP). Shannon MW.
4. Ginger Jake & the Blues: A tragic Song of Poisoning. Woolf A.
5. Accuracy of Card-Type Carbon Monoxide Detectors. Woolf A. Softley LJ. Lee K. Yanigasawa Y.
6. The Efficacy and Safety of Flumazenil for Reversal of Benzodiazepine-Induced. Sedation in a Pediatric Emergency Department. Liebelt E. Schutzman S. Shannon M.
7. Lead Poisoning in Household Pets as a Sentinel Event for Childhood Plumbism. Dowsett R. Shannon M.
8. Anticonvulsant Effects of Intracerebro-ventricular Adenosine in Theophylline-Induced Seizures. Shannon MW. Maher TJ.
9. Pediatric Transdermal Nicotine Patch Exposures: Can they Stay Home? Woolf A. Burkhart K. Caraccio T. Litovitz T.
10. Accidental Administration of Methyl-Ergonovine Maleate (MEM) in a Neonate. Baum C. Hilpert P. Bhutani V.
11. Self-Harm Using Multiple Transdermal Nicotine Patches: Clinical Implications. Woolf A. Burkhart K. Caraccio T. Litovitz T.
12. Intravenous Adenocard Protects Against Theophylline Induced Seizures. Shannon MW. Maher TJ.
13. Children with Toxic Ingestions are at Increased Risk of Lead Poisoning. Mandl KD. Graef JW. Palomino RC. Woolf A.

The Poison Center continues an award to coordinate a national surveillance research project studying unintentional exposures to transdermal nicotine patches. The sponsors of the award are the American Association of Poison Control Centers and Lederle Laboratories. Principal investigator is Alan Woolf, MD. A new grant award was received to study lead concentrations in reconstituted infant formula. The sponsor of the award is the Milton Fund at Harvard University. Principal investigators are Michael Shannon, MD and Carl Baum, MD.

MASSACHUSETTS POISON CONTROL SYSTEM
PUBLICATIONS 1994-1995
PUBLISHED ARTICLES AND REVIEWS

1. Bates BA, Shannon MW, Woolf AD: Ethanol-related visits by adolescents to a pediatric emergency department. *Pediatr Emerg Care* 1995;11:89-92.
2. Baum C, Shannon M. Environmental toxins - an increasing concern. *Contemporary Pediatrics* 1995;12:20-43.
3. Dowsett R, Shannon M. Childhood plumbism identified after lead poisoning in domestic pets. *New Engl J Med* 1994;331:1661-2.
4. Liebelt E, Shannon: Oral lead chelators. *Pediatr Ann* 1994;23:616-626.
5. Liebelt E, Shannon MW, Graef J: Clinical efficacy of meso 2,3,-dimercaptosuccinic acid in low-level childhood plumbism. *J Pediatr* 1994;124:313-317.
6. Lovejoy FH, Robertson W, Woolf AD: Poison Centers, poison prevention and the pediatrician. *Pediatrics* 1994;94:220-224.
7. Marino B, Anastopoulos H, Woolf AD: Toxicity associated with severe inhalational and dermal exposure to dimethylacetamide (DMAC) and 1,2-ethanediamine (EDA). *Journal of Occupational Medicine* 1994;36:637-641.
8. Shannon M. Hypokalemia, hyperglycemia and plasma catecholamine activity after severe theophylline intoxication. *J Tox-Clin Tox* 1994;32:41-48.
9. Shannon MW, Maher T. Anticonvulsant effects of intracerebroventricular adenocard in theophylline-induced seizures. *Ann Emerg Med* 1995;26:65-68.
10. Shannon MW. Herbal medicine - the aconites. *Clinical Toxicology Review* 1995;17(4).
11. Sue YJ, Woolf A, Shannon M: Efficacy of Mg citrate cathartic in pediatric toxic ingestions. *Ann Emerg Med* 1994;24:709-12.
12. Woolf AD: Diethylene Glycol. *Clinical Toxicology Review* 1994;19:1-2.
13. Woolf AD. Castor Bean. *Clinical Toxicology Review* 1994;13:4
14. Woolf AD: Ginger Jakes & the blues: a tragic song of poisoning. *Vet Human Toxicol* 1995;37:252-4.
15. Woolf AD, Lovejoy FH. Medication errors (letter). *Drug Safety* 1994;10:329.
16. Woolf AD, Shannon MW. Clinical toxicology for the pediatrician. *Pediatr Clin NA* 1995;42:317-333.
17. Woolf AD. Baby-safe houseplants and cut flowers. (Book Review) *Pediatric Alert* 1994.
18. Woolf AD. Toxicology in Textbook of Pediatrics, 2nd edition. eds. Avery ME, First L, Williams & Wilkins, Publishers, 1994.
19. Woolf AD. Cocaine: An Update. *Clinical Toxicology Review* 1995;20:1-2.

ARTICLES IN PRESS

1. Katz J, Prescott K, Woolf AD. Strychnine poisoning from a traditional Cambodian remedy. *Am J Emerg Med* (in press).
2. Krauss B, Shannon M, Damian F, Fleisher G. Guidelines to Pediatric Conscious Sedation (in press)
3. Liebelt EL, Francis PD, Woolf AD: The value of the electrocardiogram lead a VR versus the QRS interval in predicting seizures and arrhythmias in acute tricyclic antidepressant toxicity. *Ann Emerg Med* (in press).
4. Perry H, Shannon M. Current approach to pediatric gastrointestinal decontamination. *Ped Annals* (in press)
5. Shannon M. Etiology of childhood lead poisoning in Lead Poisoning in Childhood. Pueschel S, Linakis J, Anderson A, Eds. Brookes Publishing Co. (in press).
6. Shannon M. Inhalants. In *Core Text in Substance Abuse*. Friedman L, Fleming N, Roberts D, Hyman S., Eds. Williams & Wilkins (in press).
7. Shannon M. Poisonings in Critical Care for Infants and Children. Todres ID, Fugate J. Eds., Little Brown and Company (in press).
8. Shannon MW. Petroleum Distillates in *The Clinical Practice of Emergency Medicine*. A. Harwood-Nuss, Ed. 2nd Edition, JB Lippincott (in press).
9. Shannon MW. Chloramphenicol, Disulfiram, Disc Batteries, Metronidazole, Disulfiram, Isoniazid in *Encyclopedia of Toxicology*. P Wexler, Ed., Appleton & Lange (in press).
10. Shannon MW: Methylxanthines. *Intensive Care Medicine*. Little, Brown & Co, (in press).
11. Woolf AD, Liebelt E, Berkowitz ID, Rodgers C: Chapter 40:Poisoning and Critically Ill Child in *Critical Care Medicine* eds. Fackler JC (in press).
12. Woolf AD, Lovejoy FH Jr: *Digitalis in Human Toxicology* ed. Pr Jacques Descotes. Elsevier Press, Amsterdam, The Netherlands (in press).
13. Woolf AD: Isoniazid in *The Clinical Practice of Emergency Medicine*. Second Edition. eds. Harwood-Nuss A, Linden C, Luten R, Sternback G, Wolfson A: J.B. Lippincott Co., Phil., Pa (in press).
14. Woolf AD. Digitalis intoxication: therapy with digoxin-specific antibody fragments. *Clinical Immunotherapeutics* (in press).
15. Woolf AD, Lovejoy FH: *Principles of Toxin Assessment and Screening in Pediatric Critical Care*. 2nd Ed eds. Fuhrman B.P. and Zimmerman J.J., The C.V. Mosby Co.. St. Louis. (in press).
16. Woolf AD, Lovejoy FH: *Principles and Techniques of Detoxification in Pediatric Critical Care* 2nd Ed eds. Fuhrman B.P. and Zimmerman J.J., The C.V. Mosby Co.. St. Louis, (in press).

MASS. PC 11-1-795

1995
Annual
Statistical
Report



Massachusetts
Poison Control
System

August, 1996

Designated as the Regional Poison Information Center for Massachusetts by the Massachusetts Legislature, the Massachusetts Department of Public Health, and the American Association of Poison Control Centers.

GOVERNMENT DOCUMENTS
COLLECTION

NOV 03 1997

University of Massachusetts
Depository Copy



Massachusetts Poison Control Center
300 Longwood Avenue
Boston, Ma 02115

EXECUTIVE SUMMARY

The Massachusetts Poison Control System (MPCS), founded in 1955 and regionalized for Massachusetts in 1978, continues to enjoy the support of both the state and the member institutions as a public-private partnership. Under the leadership of Commissioner David Mulligan and the Department of Public Health, the state provided 70% of the Poison Center's \$686,000 operating budget. The original six consortium institutions which organized the System: Boston City Hospital, New England Medical Center, Children's Hospital, the Massachusetts College of Pharmacy and Allied Health Sciences, Massachusetts General Hospital, and the University of Massachusetts Medical Center continue their support. Eighty member institutions, represented by the Massachusetts Hospital Association and the Massachusetts Association of Health Maintenance Organizations, provide the additional revenues needed to run the Poison Center. It is estimated that each poisoning consultation or information call costs \$10.90. If no poison center existed, it is estimated that 63% of suspected ingestions would self refer to medical services as opposed to 10% self-referral and 10% poison center referral when the poison center exists. This translates into 17,600 excess medical visits (assume 80% emergency department at \$150/visit and 20% physician's office at \$60/visit) or \$2,300,000 in extra health care expenses. When subtracted from the poison center's budget, there was a savings of almost \$1,600,000 in unnecessary health expenditures in 1995 attributable to the existence of the Massachusetts Poison Center.

During 1995, the Poison Center received 38,739 poisoning-related telephone calls, with children under 5 years of age accounting for over 57% of the total. Total volume, including follow-up calls as well as informational inquiries, reached over 78,500 calls. Most poisonings occurred in the home; however more than 13% of the calls to the Poison Center came from health care facilities such as hospitals and health centers. More than 3,590 poisonings (9.2%) were judged potentially severe or life-threatening; 20 deaths were reported.

Besides this tremendous volume of service, the MPCS continues to develop initiatives to prevent poisonings. New efforts at public education have been organized with the Museum of Science in Boston. Additionally telephone stickers and brochures were distributed through civic and health organizations. A new TDD telephone system has been installed to serve deaf and hearing-impaired clients. The System also seeks to improve poisoning management through an extensive program of professional education and research. More than 50 health professionals annually receive training at the Poison Center. Lectures and workshops in clinical toxicology were presented at over 20 health care institutions in the state in 1995. The MPCS is among the top U.S. poison centers in research productivity, with almost 50 scientific reviews and original papers published or in press in 1995-96 alone. It has also developed a model fellowship program for training future toxicologists.

Massachusetts can be proud of its certified Poison Control System: a national leader in service, education, and research.

POISON CENTER FACTS AT A GLANCE

1. The Poison Center received 38,739 poisoning-related calls in 1995.
2. Children 2 years and younger accounted for 16,136 poisoning calls or almost 42% of the total.
3. The Poison Center also received 25,483 information calls; and specialists made 14,285 follow-up calls. Total telephone volume in 1995 was 78,507 incoming and outgoing calls. The high volume of total telephone activity has increased from the telephone volume of 1994 by 4,396 calls.
4. Operations at the Poison Center cost \$700,000 in Fy95 (July 1995 to June 1996) for direct expenses only. Of this budget, more than 90% was spent on personnel. The Poison Center expenses represent a cost of \$10.90 per poisoning or information call. The Poison Center accounted for \$1,700,000 savings in unnecessary health services utilization averted in Massachusetts in 1995.
5. There were 20 deaths related to poisoning reported to the Poison Center in 1995 (<0.06% total poisoning call volume).

STAFF

Director
Alan D. Woolf, M.D., M.P.H.

Assistant Director
Open

Staff Toxicologist
Michael Shannon, M.D., M.P.H.

Administrator
Anne Vaccaro

Administrative Associate
Barbara J. Bennett

Coordinator, Public Education
Judith Shaw, R.N.

Clinical Fellows
Carl Baum, M.D.(ends June, 1996)
Holly Perry, M.D.
Robert Wright, M.D. (starts July, 1995)

Poison Center Consultant
Kim Pearson, M.D.

Off-Site Consultants
Rose Goldman, M.D.
John Graef, M.D.
Sam Lesko, M.D.
Allen A. Mitchell, M.D.
Arnold Soslow, M.D.

Chief Specialist, Poison Information
Judith Woodard-Jenkins, R.N., C.S.P.I.

Senior Specialists, Poison Information
Safiyya Mason, R.N., C.S.P.I.
Tom Quail, R.N., C.S.P.I.
Adina Sheroff, R.N., C.S.P.I.

Specialists, Poison Information
Anita Bijan, R.Ph., C.S.P.I.
Keith Christanthus, R.Ph., C.S.P.I.
Michael Scanlon, Assistant
Kristine Cafferky, R.N., C.S.P.I.
MaryEllen Gevry, R.Ph.
Robert Hallisey, R.Ph.
David Gaigal, R.Ph., C.S.P.I.
Villiscent Puran, R.Ph.
Arlyne Barnett, R.N., C.S.P.I.
Bette Pyne, R.N.
Virginia Fortin, R.N.
Mary Houlihan, R.N., C.S.P.I.
William Partridge, R.N., C.S.P.I.
James Rorick, R.Ph., C.S.P.I.
Deb Abrahams, R.N.

ADVISORY BOARD MEMBERS

Chair

Bob Masters, MD
BU School Pub Hlth
Hlth Serv Dep Rm A319
80 E. Concord Street
Boston, MA 02118
638-5042

Louise Goyette
OEMS, Director
Officer of Emer Serv.
150 Tremont St. 2nd Floor
Boston, MA 02111
451-3433

Peter Goldman, MD
Maxwell Finland Professor
of Clinical Pharmacology
Harvard School of Public Health
677 Huntington Avenue
Boston, MA 02115
432-2260

Ron Kleinman, MD
Department of Pediatrics
Mass General Hospital
32 Fruit Street
Boston, MA 02114
726-2930

Timothy Maher, PhD
Associate Professor
Mass College of Pharmacy
and Allied Health Sciences
179 Longwood Avenue
Boston, MA 02116
732-2800

David G. Nathan, MD
Physician-in-Chief
The Children's Hospital
300 Longwood Ave
Boston, MA 02115
355-7681

Victoria Ozonoff
Dept. of Public Health
250 Washington Street
Boston, MA 02108
727-1246

Evan Charney, MD
Professor of Pediatrics
U Mass Medical Center
55 Lake Avenue North
Worcester, MA 01605
856-3199

Deborah KleinWalker
Dept. of Public Health
250 Washington Street
Boston, MA 02108
727-3372

Howard Spivak, MD
Associate Professor
Department of Pediatrics
New England Medical Center
171 Harrison Avenue
Boston, MA 02218
956-5241

Ex officio
Alan D. Woolf, MD MPH
Director
Mass Poison Control System
300 Longwood Avenue
Boston, MA 02115
355-6609

Joseph Thompson, Director
Reg. Affairs and
Quality Improvement
Mass Hospital Assoc.
5 New England Exec. Park
Burlington, MA 01803
272-8000

Fred Lovejoy, MD
Assist. Physician-in-Chief
Department of Medicine
Children's Hospital
Boston, MA 02115
355-6605

Courtney Hutzinger
Legislative Analyst
Mass HMO Association
Park Square Building
Boston, MA 02116
722-4122

Linda Doctor
Dept. of Public Health
250 Washington Street
Boston, MA 02108
727-3372

Allen Mitchell, MD
Associate Director,
S lone Epidemiology Unit
Boston University
School of Medicine
1371 Beacon Street
Brookline, MA
734-6006

Arnold Soslow, MD
Director, Corporate
Health Program
Metrowest Medical Center
115 Lincoln Street
Framingham, MA 01701
(508)358-2903

MEMBER AFFILIATES

Anna Jaques Hospital
Athol Memorial Hospital
Baystate Medical Center
Berkshire Medical Center
Beth Israel Hospital
Beverly Hospital
Boston VA Hospital
Boston Regional Medical Center
Boston City Hospital
Brigham & Women's Hospital
Brockton Hospital
Cambridge Hospital
Cape Cod Hospital
Carney Hospital
Charlton Memorial Hospital
Children's Hospital
Cooley Dickinson Hospital
Deaconess Glover Hospital
Deaconess-Nashoba Hospital
Emerson Hospital
ENRM Veterans Hospital
Fairview Hospital
Fallon Healthcare System
Falmouth Hospital
Faulkner Hospital
Franciscan Children's Hospital
Franklin Medical Center
Good Samaritans Medical Center
Harrington Memorial Hospital
Harvard University Health Services
Harvard Comm. Hlth Plan Foundation
Hale Haverhill Hospital
Heywood Hospital
Hillcrest Hospital
Holy Family Hospital
Holyoke Hospital
Hubbard Regional Hospital
Jordan Hospital
Lahey Clinic Medical Center
Lawrence General Hospital
Lawrence Memorial Hospital
Lowell General Hospital
Malden Hospital
Marlborough Hospital
Martha's Vineyard Hospital
Mary Lane Hospital
Mass Eye & Ear Infirmary
Mass College of Pharmacy
Mass General Hospital
Mass Institute of Technology
McLean Hospital
Medical Center at Symmes
Melrose-Wakefield Hospital
Metro-West Medical Center Carney Hospital
Milford-Whitinsville Hospital
Milton Hospital
Morton Hospital & Med Center
Mount Auburn Hospital
New England Deaconess Hospital
New England Medical Center
New England Baptist Hospital
Newton Wellesley Hospital
Noble Hospital
North Shore Medical Center
North Adams Regional Hospital
Norwood Hospital
Quincy Hospital
Saints Memorial Medical Center
Somerville Hospital
South Shore Hospital
Southwood Community Hospital
St. Elizabeth's Medical Center
St. Luke's Hospital, New Bedford
St. Vincent's Hospital
Tobey Hospital
Tuft's University Medical School
U Mass Medical Center
Whidden Memorial Hospital
Winchester Hospital
Wing Memorial Hospital

INTRODUCTION

The Massachusetts Poison Control System, founded in 1955 and regionalized in 1978, is one of the oldest and most active poison centers in the United States. The original six consortium institutions which organized this system: the Boston City Hospital, Tufts University Medical School, the Children's Hospital, the Massachusetts College of Pharmacy and Allied Health Sciences, New England Medical Center, and the University of Massachusetts Medical School all continue their active support.

This, the eighteenth year of support by Member Institutions, saw 80 hospitals and health maintenance organizations contributing to the operating budget. The Member Institutions now contribute approximately 20% of the System's operating budget.

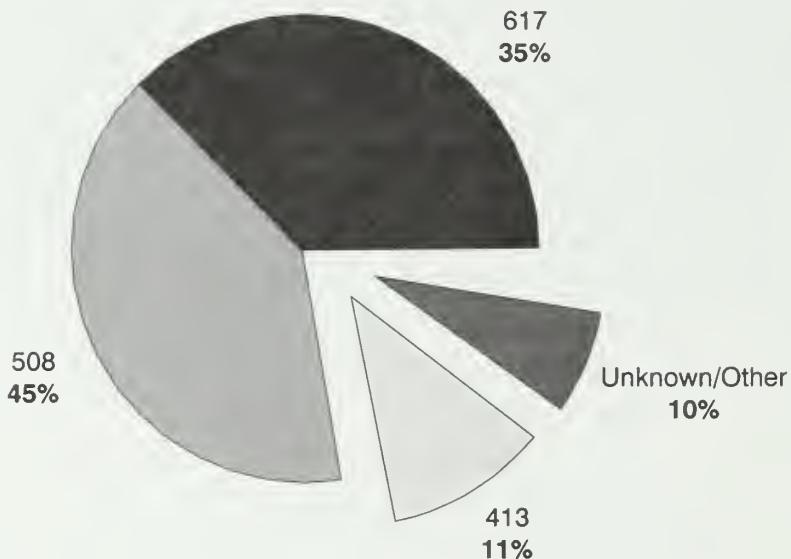
MISSION STATEMENT

The primary mission of the system continues to be that of providing the highest calibre of assistance and expertise in the medical diagnosis and management of poisoning cases involving the citizens of the Commonwealth of Massachusetts.

Additionally the MPCS seeks to improve the quality of medical care given to potentially poisoned patients by maintaining an unparalleled standard of excellence in both clinical research activities and professional education endeavors. Finally it is integral to the mission of the MPCS that it serve the Commonwealth as a lead agency in the development of innovative strategies to prevent unnecessary injuries due to intentional and unintentional poisonings and toxic exposures.

GEOGRAPHIC DISTRIBUTION

More than 64,222 poisoning-related exposure or inquiry calls were reported to the Massachusetts Poison Center in 1995, representing an increase of 2.5% over the call volume in 1994. Within this total, there were 30,517(77.6%) exposure calls from the public and 8,222 (22.4%) calls concerning poisoned patients being treated by health professionals (Total:38,739 exposure calls). There were an additional 25,483 inquiry calls about poisons, where no exposure had taken place. Of the exposure calls only, 44.7% were from 508 area code, 34.6% from the 617 area code, 10.9% from the 413 area code, and 9.8% of calls were from unknown telephone numbers or from out of state.



Calls by Area Code
N-38,739

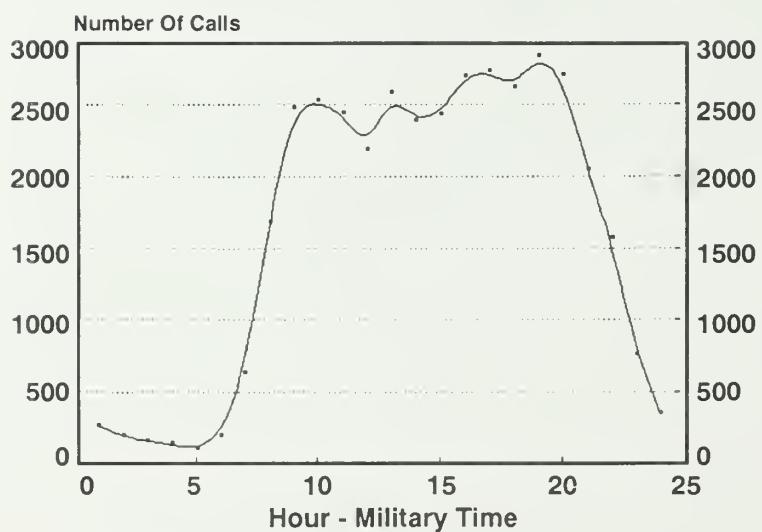
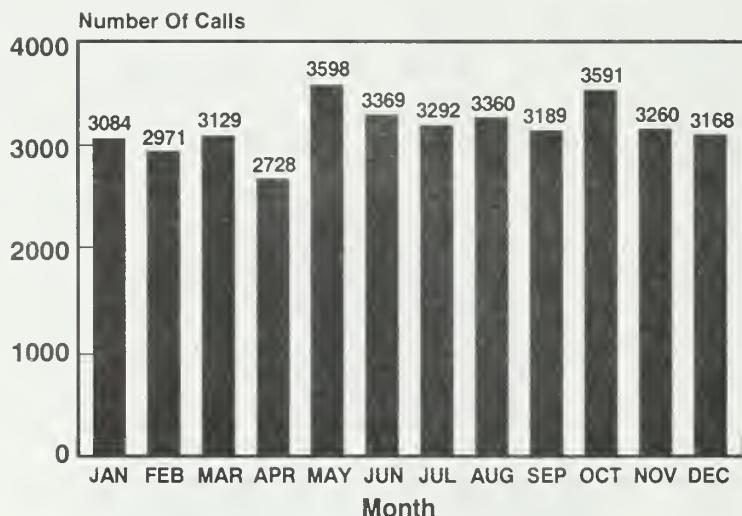
AGE & SEX

The peak ages for victims of poisoning are children 0-3 years old and adolescents 13-19 years old. While there was little gender difference among early childhood exposures, more males than females of school age were involved in poisonings. Also more female than male adolescents were involved in poisonings at a ratio of 1.5:1.

AGE (YEARS)	MALES	FEMALES	NON- SPECIFIED	TOTAL	%
<1	1216	1064	19	2299	5.9
1	3394	3025	16	6435	16.6
2	4116	3248	38	7402	19.1
3	2027	1625	12	3664	9.5
4	867	721	11	1599	4.1
5	496	417	9	922	2.4
6-12	1522	1093	27	2642	6.8
13-19	1129	1808	25	2962	7.6
20-29	1155	1431	46	2632	6.8
30-39	1154	1392	44	2590	6.7
40-49	657	873	1	1531	4.0
50-59	324	407	3	734	1.9
60-69	171	276	0	447	1.2
>70	211	442	0	653	1.7
UNKNOWN AGE	818	1120	289	2227	5.7
 TOTALS	19,257	18,942	540	38,739	100%

CALL VOLUME CHARACTERISTICS

The largest volume of exposure calls was received during May and October; the least number during April. The exposure calls show a varied distribution for time of day with peak periods of calling frequency during 9:00-10:00 A.M. and 4:00-8:00 P.M. at night. By contrast, less than 5% of exposure calls were received between midnight and 7:00 A.M.

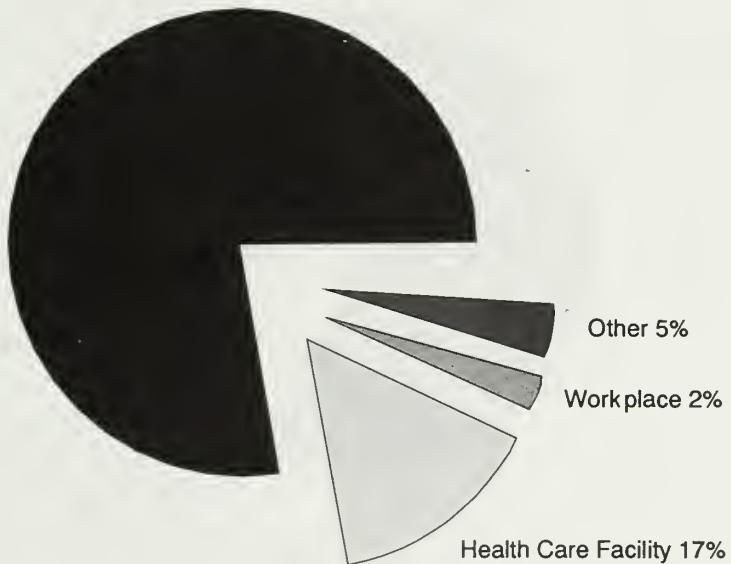


SITE OF CALLER

Over 90% of people seeking the Poison Center's advice for a potentially toxic exposure were calling from either a private residence or a health care facility.

CALLER SITE	NUMBER OF CALLS	% OF TOTAL
OWN RESIDENCE	28,558	73.7%
OTHER RESIDENCE	713	1.8%
HEALTH CARE FACILITY	6,700	17.3%
WORKPLACE	773	2.0%
SCHOOL	178	0.5%
PUBLIC AREA	167	0.5%
OTHER/UNKNOWN	1,650	4.2%
TOTALS	38,739	100%

Residence 76%

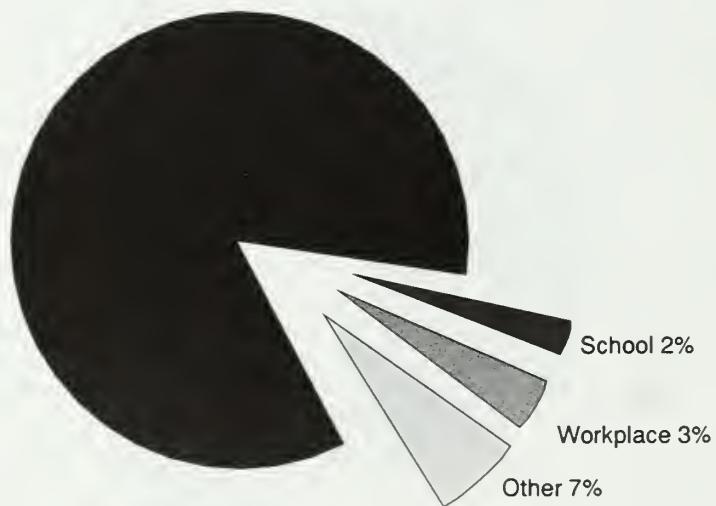


SITE OF EXPOSURE

The most frequent site of exposure to a potential toxin continues to be the victim's own residence. However the Poison Center also received an important number of calls concerning occupational exposures or exposures at schools, other public areas such as restaurants, or health care facilities as well.

SITE OF EXPOSURE	NUMBER	% OF TOTAL
OWN HOME	32,823	84.7%
OTHER RESIDENCE	1,348	3.5%
WORKPLACE	1,097	2.8%
SCHOOL	952	2.5%
OTHER PUBLIC AREA	632	1.7%
HEALTH CARE FACILITY	215	0.5%
OTHER/UNKNOWN	1,672	4.3%
TOTALS	38,739	100%

Residence 88%



CALLERS – CITIES & TOWNS

The Poison Center received 38,739 poisoning-related calls in 1995. There were 13,422 calls from the area code 617, 4,207 calls from the area code 413, and 17,311 calls from the area code 508. There were 3,799 calls (9.8%) in which the town of the caller was not identified or the call was made from outside Massachusetts. The 34,940 calls from more than 275 cities and towns have been tabulated. For some towns (East Longmeadow/Longmeadow; Stockbridge/West Stockbridge; Reading/North Reading; Adams/North Adams; Attleboro/ N&S Attleboro) the populations and call frequencies were combined. Calls were received in 1995 from the following cities and towns:

AREA CODE 413 - 4,207 POISONING CALLS

NUMBER	RANK	TOWN	CALLS	PENETRATION RATE*
1	1	SPRINGFIELD	841	5.6
2	2	HOLYOKE	389	9.4
3	3	PITTSFIELD	299	6.4
4	4	WESTFIELD	251	6.4
5	5	NORTHAMPTON	179	6.2
6	6	GREENFIELD	159	8.7
7	7	AMHERST	157	4.6
8	8	ADAMS/N ADAMS	146	5.6
9	9	LONGMEADOW/EAST LONGMEADOW	141	4.9
10	10	CHICOPEE	140	2.4
11	11	LUDLOW/INDIAN ORCHARD	131	6.7
12	12	PALMER	107	8.5
13	13	AGAWAM	94	3.4
14	14	EASTHAMPTON	91	5.6
15	15	WARE	77	7.6
16	16	GREAT BARRINGTON	62	8.2
17	17	BELCHERTOWN	55	4.7
18	18	DEERFIELD	49	9.5
19	19	WILBRAHAM	46	3.5
20	20	LEE	40	6.8
21	21	SOUTHWICK	39	4.7
22	22	DALTON	38	5.5
23	23	MONSON	36	4.4
24	24	WARREN	31	6.8
25	24	GRANBY	31	5.3
26	25	BRIMFIELD	29	8.7
27	26	WILLIAMSTOWN	27	3.4
28	27	SHELBOURNE FALLS	26	12.2
29	27	SHEFFIELD	26	8.8
30	28	HAMPDEN	22	4.4
31	29	HUNTINGTON	21	10.1
32	30	TURNER'S FALLS	18	**
33	30	BECKET	18	9.4
34	30	MILLER'S FALLS	18	**
35	31	STOCKBRIDGE	17	7.1

CALLERS – CITIES & TOWNS

NUMBER	RANK	TOWN	CALLS	PENETRATION RATE*
36	32	WILLIAMSBURG	16	5.8
37	33	CHARLEMONT	15	11.0
38	34	HATFIELD	14	4.2
39	34	BERNARDSTON	14	6.7
40	34	LENOX	14	2.7
41	35	OTIS	13	10.7
42	36	NORTHFIELD	12	4.2
43	36	HOUSATONIC	12	**
44	37	CUMMINGTON	11	11.6
45	37	HINSDALE	11	5.4
46	38	MONTAGUE	8	1.0
47	38	SANDISFIELD	8	8.9
48	39	ASHFIELD	7	3.8
49	40	GILBERTVILLE	6	**
50	40	RICHMOND	6	3.5
51	41	COLRAIN	5	2.7
52	41	CHESTERFIELD	5	3.5
53	41	GRANVILLE	5	3.2
54	42	WORTHINGTON	4	2.7
55	42	HANCOCK CENTER	4	6.5
56	42	RUSSELL	4	2.3
57	43	CONWAY	3	1.8
58	43	CHESTER	3	2.6
59	44	HEATH	2	2.9
60	45	BLANDFORD	1	0.8
—	—	OTHER/UNKNOWN TOWNS	53	—
60	45	TOTALS	4,207	

AREA CODE 508 - 17,586 POISONING CALLS

NUMBER	RANK	TOWN	CALLS	PENETRATION RATE*
1	1	WORCESTER/AUBURN	958	5.3
2	2	BROCKTON	781	8.7
3	3	NEW BEDFORD	726	7.4
4	4	LAWRENCE	691	10.6
5	5	FALL RIVER	588	6.5
6	6	LOWELL	544	5.4
7	7	ATTLEBORO/NORTH & SOUTH ATTLEBORO	471	7.4
8	8	TAUNTON	462	9.4
9	9	HAVERHILL	458	8.9
10	10	FRAMINGHAM	439	6.6
11	11	SALEM	311	8.1

CALLERS – CITIES & TOWNS

NUMBER	RANK	TOWN	CALLS	PENETRATION RATE*
12	12	NATICK	277	8.9
13	13	HYANNIS	267	6.0
14	14	BEVERLY	264	6.8
15	15	PEABODY	259	5.4
16	16	MARLBOROUGH	254	7.7
17	17	DANVERS	230	9.3
18	18	PLYMOUTH	222	4.9
19	19	LEOMINSTER	215	5.6
20	20	NEWBURYPORT	208	12.2
21	21	BILLERICA	203	5.2
22	22	FITCHBERG	200	5.0
23	23	GARDNER	195	9.7
24	24	WILMINGTON	191	10.3
25	24	MILFORD	191	7.4
26	25	WEBSTER	187	11.5
27	26	FALMOUTH	164	5.6
28	27	BRIDGEWATER	159	7.4
29	28	FRANKLIN	156	6.6
30	29	WALPOLE	155	7.1
31	30	MIDDLEBOROUGH	152	8.3
32	30	SOUTHBRIDGE	152	8.8
33	31	MANSFIELD	148	8.7
34	32	CONCORD	147	8.3
35	33	ANDOVER/NORTH ANDOVER	143	2.7
36	34	CHELMSFORD	142	4.2
37	35	ACTON	139	7.6
38	36	DENNIS	132	8.7
39	37	GLOUCESTER	124	4.2
40	37	OSTERVILLE	124	**
41	38	AMESBURY	123	8.0
42	39	GEORGETOWN	117	17.6
43	40	SAGAMORE	118	**
44	41	WAREHAM	116	5.8
45	42	TEWKSBURY	114	4.0
46	43	WESTBOROUGH	110	7.7
47	43	ATHOL	110	9.4
48	44	WESTFORD	106	6.0
49	45	EASTON	105	5.2
50	46	AYER	100	14.5
51	46	NORTON	100	6.8
52	47	SHREWSBURY	95	4.0
53	48	MASHPEE	93	9.9
54	49	MANOMET	90	**
55	50	HOLLISTON	86	6.3
56	51	BLACKSTONE	85	9.9

CALLERS – CITIES & TOWNS

NUMBER	RANK	TOWN	CALLS	PENETRATION RATE*
57	52	MILLBURY	84	6.9
58	53	WHITINSVILLE	82	**
59	53	GRAFTON	82	6.2
60	54	HOPKINTON	81	7.9
61	55	MAYNARD	80	7.4
62	55	HARWICH	80	7.1
63	56	FOXBOROUGH	78	4.9
64	56	CLINTON	78	6.0
65	57	IPSWICH	77	6.2
66	57	HOLDEN	77	5.3
67	57	VINEYARD HAVEN	77	**
68	57	ASHLAND	77	5.9
69	57	LEICESTER	77	7.4
70	58	SUDSBURY	73	4.9
71	58	MEDWAY	73	6.9
72	59	MEDFIELD	71	6.4
73	60	PEPPERELL	70	6.1
74	60	SPENCER	70	5.6
75	61	READING	69	3.0
76	62	UXBRIDGE	68	6.5
77	63	NORTHBOROUGH	67	5.5
78	64	BUZZARD'S BAY	66	**
79	65	CATAUMET	65	**
80	65	BOYLSTON	65	17.9
81	65	HUDSON	65	3.5
82	65	OXFORD	65	5.0
83	66	ORLEANS	64	9.6
84	66	WRENTHAM	64	6.5
85	67	CHARLTON	61	6.0
86	67	TYNGSBOROUGH	61	6.2
87	68	NORTH BROOKFIELD	60	12.6
88	69	BARNSTABLE	59	1.3
89	70	DRACUT	56	2.0
90	71	WESTPORT	54	3.8
91	71	NANTUCKET	54	7.8
92	72	GROTON	53	6.3
93	73	MILLIS	52	6.4
94	73	CHATHAM	52	7.5
95	74	ORANGE	51	6.6
96	75	TOWNSEND	50	5.0
97	76	TOPSFIELD	49	8.5
98	77	LITTLETON	48	6.4
99	78	BREWSTER	47	4.8
100	79	WINCHENDON	46	5.0
101	79	HAMILTON	46	6.0
102	80	CARVER	44	3.5

CALLERS – CITIES & TOWNS

NUMBER	RANK	TOWN	CALLS	PENETRATION RATE*
103	81	STURBRIDGE	43	5.1
104	81	BELLINGHAM	43	2.8
105	82	ROCHESTER	42	9.5
106	83	EAST DOUGLAS	41	7.2
107	84	ROCKPORT	39	5.2
108	85	MATTAPOISETT	38	5.9
109	85	BARRE	38	7.7
110	86	RUTLAND	36	7.0
111	87	UPTON	35	7.1
112	88	MARION	34	7.4
113	89	MANCHESTER	34	6.3
114	90	DOVER	32	6.2
115	91	BOLTON	31	9.3
116	92	WAYLAND	30	2.4
117	93	ROWLEY	28	5.9
118	93	MERRIMAC	28	5.2
119	93	STERLING	28	3.9
120	94	LUNENBERG	27	2.9
121	95	WESTMINSTER	26	4.0
122	95	EDGARTOWN	26	7.5
123	96	HARVARD	25	1.9
124	97	ASHBURNHAM	24	3.9
125	97	ASSONET	24	**
126	98	TEMPLETON	23	3.3
127	99	SEEKONK	22	1.7
128	100	WELLFLEET	20	7.1
129	100	ASHBY	20	6.2
130	101	HUBBARDSTON	19	6.6
131	102	REHOBOTH	17	1.8
132	102	DIGHTON	17	2.9
133	103	ESSEX	16	5.0
134	104	SHIRLEY	15	2.3
135	105	PROVINCETOWN	14	3.9
136	106	BERLIN	13	5.7
137	107	WEST NEWBURY	12	3.2
138	108	PRINCETON	11	3.2
139	109	OAKHAM	8	4.9
140	110	CHILLMARK	7	10.0
141	110	SWANSEA	7	0.4
142	111	SIASCONET	4	**
143	112	PETERSHAM	3	2.0
		OTHER	108	
143	112	TOTALS	17,586	—

CALLERS – CITIES & TOWNS

AREA CODE 617 - 13,147 POISONING CALLS

NUMBER	RANK	TOWN	CALLS	PENETRATION RATE*
1	1	BOSTON	2927	5.0
2	2	BROOKLINE	832	15.6
3	3	CAMBRIDGE	640	6.8
4	4	QUINCY	449	5.2
5	5	LYNN	416	5.3
6	6	WEYMOUTH	406	7.2
7	7	NEWTON	373	4.5
8	8	WALTHAM	334	5.7
9	9	MEDFORD	315	5.6
10	10	SOMERVILLE	313	4.4
11	11	MALDEN	281	5.2
12	12	EVERETT	277	7.9
13	13	MELROSE	264	9.4
14	14	NORWOOD	263	9.0
15	15	BRAINTREE	222	6.4
16	16	WINCHESTER	214	10.7
17	17	BURLINGTON	213	9.1
18	18	ARLINGTON	210	4.8
19	19	WELLESLEY	204	7.5
20	20	NEEDHAM	203	7.2
21	21	REVERE	201	4.6
22	22	MILTON	177	6.8
23	23	ROCKLAND	168	10.7
24	23	WOBURN	168	4.4
25	24	WAKEFIELD	166	6.5
26	25	DEDHAM	162	6.8
27	26	MARSHFIELD	144	6.5
28	27	SAUGUS	139	5.4
29	27	BRYANTVILLE	139	**
30	28	LEXINGTON	134	4.6
31	29	WATERTOWN	131	4.0
32	30	STOUGHTON	128	4.5
33	30	RANDOLPH	128	4.1
34	31	READING	120	5.2
35	32	BELMONT	119	4.9
36	33	BEDFORD	112	8.5
37	34	CHELSEA	110	4.1
38	35	MARBLEHEAD	109	5.5
39	36	HINGHAM	102	5.2
40	36	CANTON	102	5.3
41	37	SHARON	99	6.0
42	38	SCITUATE	97	5.8
43	39	STONEHAM	93	4.0

CALLERS – CITIES & TOWNS

NUMBER	RANK	TOWN	CALLS	PENETRATION RATE*
44	40	KINGSTON	87	9.3
45	40	NAHANT	87	22.3
46	41	WHITMAN	86	6.6
47	42	HANOVER	79	6.7
48	43	WINTHROP	52	2.8
49	44	HULL	47	4.7
50	45	LYNNFIELD	46	4.1
51	45	DUXBURY	46	3.1
52	46	COHASSET	36	4.7
53	47	HOLBROOK	35	3.0
54	48	LINCOLN	33	4.1
55	49	NORWELL	30	3.2
56	50	WINTHROP	20	1.1
57	51	MILTON	17	0.6
58	52	BELMONT	16	0.7
59	53	CATAUMET	2	**
60	53	DRACUT	2	**
–	–	OTHER	25	**
60	53	TOTALS	13,147	

*Penetration Rate represents the number of exposure calls per 1,000 population (town population figures from 1994 Department of Public Health census data)

**Population figures unavailable

CALLERS – HEALTH PROFESSIONALS

The Poison Center received 8,222 calls (22.4% of the total) from over 118 hospitals and many other health-related institutions within Massachusetts in 1995. Besides hospitals, other large clients of the Poison Control System included The Fallon Clinic, Harvard Community Health Plan, Harvard University Health Services, and the University of Massachusetts at Amherst. Physicians' offices, health centers, walk-in clinics, mental health facilities, nursing homes, correctional institutions, and homes for the retarded were other important users of poison center services.

NUMBER	RANK	CALLS	HOSPITAL
1	1	236	BOSTON CITY HOSPITAL
2	2	200	CAMBRIDGE HOSPITAL
3	3	197	BROCKTON HOSPITAL
4	4	193	CHILDREN'S HOSPITAL
5	5	174	ST. LUKE'S NEW BEDFORD
6	6	164	BETH ISRAEL HOSPITAL
7	7	136	SOUTH SHORE HOSPITAL
8	8	129	HALE HOSPITAL
9	9	128	HOLY FAMILY HOSPITAL
10	10	125	BAY STATE MEDICAL CENTER
11	11	123	WINCHESTER HOSPITAL
12	12	108	METROWEST FRAMINGHAM HOSP
13	13	105	WHIDDEN HOSPITAL
14	14	91	NORTH SHORE CHILDREN'S HOSP.
15	15	90	MASS GENERAL HOSPITAL
16	15	90	HEYWOOD HOSPITAL
17	16	89	MORTON HOSPITAL
18	17	85	NOBLE HOSPITAL
19	18	79	QUINCY HOSPITAL
20	19	76	NORWOOD HOSPITAL
21	20	75	CAPE COD HOSPITAL
22	21	74	ST. ELIZABETH'S MEDICAL CTR
23	21	74	MALDEN HOSPITAL
24	21	74	LAWRENCE GENERAL HOSPITAL
25	22	68	JORDAN HOSPITAL
26	23	67	MERCY HOSPITAL
27	24	66	ANNA JAQUES HOSPITAL
28	24	66	CHARLTON MEMORIAL HOSPITAL
29	25	62	BRIGHAM & WOMEN'S HOSPITAL
30	26	61	CARNEY HOSPITAL
31	26	61	HARRINGTON HOSPITAL
32	27	60	SOMERVILLE HOSPITAL
33	28	59	MT AUBURN HOSPITAL
34	29	50	BERKSHIRE MEDICAL CENTER
35	30	57	BOSTON REGIONAL HOSPITAL
36	31	56	SALEM HOSPITAL
37	31	56	MILTON HOSPITAL
38	32	51	MELROSE WAKEFIELD HOSPITAL
39	32	51	NEW ENGLAND MEDICAL CENTER

CALLERS – HEALTH PROFESSIONALS

NUMBER	RANK	CALLS	HOSPITAL
40	33	50	DEACONESS WALTHAM HOSPITAL
41	33	50	FAULKNER HOSPITAL
42	34	49	BEVERLY HOSPITAL
43	35	48	LAHEY CLINIC - BURLINGTON
44	36	47	HUBBARD REGIONAL HOSPITAL
45	36	47	LYNN UNION HOSPITAL
46	36	47	SOUTHWOOD COMM HOSPITAL
47	37	46	LAWRENCE MEMORIAL HOSPITAL
48	37	46	LOWELL GENERAL HOSPITAL
49	38	41	SAINTS MEMORIAL - EAST
50	39	40	BROCKTON VA HOSPITAL
51	40	39	DEACONESS NASHOBA HOSPITAL
52	41	38	DEACONESS GLOVER HOSPITAL
53	41	38	ATHOL MEMORIAL HOSPITAL
54	42	36	FRANKLIN MEDICAL CENTER
55	43	35	LAHEY SYMMES HOSPITAL
56	44	33	GOOD SAMARITAN MEDICAL CENTER
57	45	32	FALMOUTH HOSPITAL
58	45	32	METROWEST NATICK HOSPITAL
59	46	31	MILFORD HOSPITAL
60	46	31	PROVIDENCE HOSPITAL
61	47	30	ADDISON GILBERT HOSPITAL
62	47	30	WING MEMORIAL HOSPITAL
63	47	30	BOSTON UNIVERSITY HOSPITAL
64	48	29	NORTH ADAMS REGIONAL HOSPITAL
65	49	28	NEWTON WELLESLEY HOSPITAL
66	50	27	COOLEY-DICKINSON HOSPITAL
67	51	26	HUNT MEMORIAL HOSPITAL
68	51	26	ST. VINCENT'S HOSPITAL
69	52	23	EMERSON HOSPITAL
70	52	23	MARY LANE HOSPITAL
71	53	21	DEACONESS BOSTON
72	53	21	HOLYOKE HOSPITAL
73	54	20	BURBANK HOSPITAL
74	54	20	FAIRVIEW HOSPITAL
75	55	19	MEDICAL CENTER CENTRAL MA
76	56	16	STURDY MEMORIAL HOSPITAL
77	56	16	NANTUCKET COTTAGE HOSPITAL
78	56	16	ST ANNE'S HOSPITAL
79	57	15	MARTHA'S VINEYARD HOSPITAL
80	58	13	VA BROCKTON HOSPITAL
81	59	12	LAHEY CLINIC NORTH-PEABODY
82	60	11	HILLCREST HOSPITAL
83	61	10	MARLBOROUGH HOSPITAL
84	61	10	BROOKLINE HOSPITAL
85	62	9	AMESBURY HOSPITAL

CALLERS – HEALTH PROFESSIONALS

NUMBER	RANK	CALLS	HOSPITAL
86	62	9	FRANCISCAN CHILDREN'S HOSP
87	62	9	CABLE MEMORIAL HOSPITAL
88	62	9	TOBEY HOSPITAL
89	63	8	NEW ENGLAND BAPTIST HOSPITAL
90	63	8	JAMAICA PLAIN VA HOSPITAL
91	64	7	LAWRENCE GENERAL HOSPITAL
92	64	7	U MASS MEDICAL CENTER
93	64	7	VA WEST ROXBURY HOSPITAL
94	64	7	WILMINGTON URGENT CARE
95	64	7	BERKSHIRE MEDICAL CENTER
96	64	7	VA NORTHAMPTON HOSPITAL
97	65	6	SAINTS MEMORIAL-LOWELL
98	65	6	LEOMINSTER HOSPITAL
99	65	6	MA EYE & EAR INFIRMARY
100	65	6	BOSTON FLOATING HOSPITAL
101	66	4	ATLANTICARE MEDICAL CENTER
102	66	4	CLINTON HOSPITAL
103	66	4	CUSHING HOSPITAL
104	66	4	ST. JOHN OF GOD HOSPITAL
105	67	3	AMESBURY HOSPITAL
106	68	2	WINCHEDON HOSPITAL
107	68	2	MILFORD WHITINSVILLE HOSPITAL
108	68	2	HANSCOMB AIR FORCE BASE
109	69	1	MT PLEASANT HOSPITAL
110	69	1	SPRINGFIELD MUNICIPAL HOSP
111	69	1	BOURNEWOOD HOSPITAL
112	69	1	FRANKLIN CITY PUBLIC HOSPITAL
113	69	1	HOLDEN HOSPITAL
114	69	1	WINTHROP HOSPITAL
115	69	15	OTHER
115	69	5,320	

CALLERS – HEALTH PROFESSIONALS

The Poison Center also received a number of calls from medical clinics and health maintenance organizations in 1995 including:

CLINIC	# OF CALLS	% OF TOTAL
PHYSICIAN'S OFFICES	664	55.4%
HEALTH CENTERS	273	22.8%
HARVARD COMMUNITY HEALTH PLAN	161	13.4%
FALLON CLINIC	60	5.0%
HARVARD U. HEALTH SERVICES	19	1.6%
U MASSACHUSETTS -AMHERST	11	0.9%
MIT INFIRMARY	4	0.3%
TUFT'S U. HEALTH CENTER	4	0.3%
MGH-CHELSEA SATELLITE CLINIC	1	0.1%
NEW ENGLAND SINAI	1	<0.1%
SPAULDING REHABILITATION HOSPITAL	1	<0.1%
 TOTALS	1,199	100%

Other calls came from a variety of other types of health care providers, accounting for 1,427 of the calls from health professionals in 1995.

FACILITY	# OF CALLS	% OF TOTAL
SCHOOLS/CORRECTIONAL FACILITIES	683	47.9%
MENTAL HEALTH PROGRAMS	188	13.2%
AMBULANCES	188	13.2%
NURSING HOMES	179	12.5%
FACILITIES FOR RETARDED/AUTISTIC	129	9.0%
PHARMACISTS	31	2.2%
SHELTERS	17	1.2%
MCLEAN HOSPITAL	6	0.4%
MA MENTAL HOSPITAL	1	<0.1%
ARBOUR HOSPITAL	1	<0.1%
MEDFIELD STATE HOSPITAL	1	<0.1%
PEMBROKE HOSPITAL	1	<0.1%
WESTBOROUGH HOSPITAL	1	<0.1%
WESTWOOD LODGE	1	<0.1%
 TOTALS	1,427	100%

CALLERS – HEALTH PROFESSIONALS

The Massachusetts Poison Center also is occasionally consulted by out-of-state health facilities or other sites on selected cases of poisoning:

FACILITY	# OF CALLS	% OF TOTAL
Southern New Hampshire Reg Med Ctr	60	21.1%
St. Joseph's (NH)	1	0.4%
Elliot Hospital (NH)	1	0.4%
Concord Hospital(NH)	4	1.4%
Catholic Hospital (NH)	3	1.1%
Other Hospitals-Out of State	189	68.5%
Other Poison Centers	7	2.5%
Other Hotlines	11	4.0%
TOTALS	276	100%

AGENTS INVOLVED

A total of 38,739 agents were listed as first toxins implicated in the poisoning calls taken in 1995. Of these 7,868 pharmaceuticals and 12,543 other agents were identified by code and ranked by frequency.

A. PHARMACEUTICALS

RANK	DRUG	NUMBER OF CALLS	% OF TOTAL
1	ACETAMINOPHEN	1326	16.8
2	TOPICAL PREPARATIONS	775	9.8
3	ANTIHISTAMINES	742	9.4
4	NON-STEROIDAL ANTI-INFLAMMATORY	634	8.0
5	VITAMINS	536	6.8
6	BENZODIAZEPINES	530	6.7
7	COUGH/COLD PREPARATIONS	424	5.4
8	ANTIDEPRESSANTS	352	4.5
9	SALICYLATES	323	4.1
10	ANTI MICROBIALS	281	3.6
11	NARCOTICS	252	3.2
12	ANTACIDS/GI PREPARATIONS	194	2.5
13	OTHER DRUGS	189	2.4
14	HORMONES	157	2.0
15	COCAINE/AMPHETAMINES	101	1.3
16	CAFFEINE	100	1.3
17	LITHIUM	99	1.3
18	ENT PREPARATIONS	95	1.2
19	CARBAMAZEPINE	94	1.2
20	CATHARTICS	72	0.9
21	MUSCLE RELAXANTS	61	0.8
22	OTHER ANTI-CONVULSANTS	57	0.7
23	BARBITURATES	54	0.7
24	THEOPHYLLINE	51	0.6
25	PHENYTOIN	46	0.6
26	OTHER CARDIOVASCULAR AGENTS	44	0.6
27	OTHER SEDATIVES	42	0.6
28	DIGITALIS	34	0.4
28	CALCIUM CHANNEL BLOCKERS	34	0.4
28	ANTI-CHOLINERGIC AGENTS	34	0.4
29	COMBINATION OPIATES	30	0.4
30	BETA BLOCKERS	27	0.4
31	ANESTHETICS	20	0.3
32	DIURETICS	20	0.3
33	ISONIAZID	15	0.2
34	MAO INHIBITORS	10	0.1
35	TRAMADOL	8	0.1
36	L-DOPA	3	<0.1
37	METHYLSERGIDE	2	<0.1
TOTALS		7,868	100%

AGENTS INVOLVED

There were 12,543 non-pharmaceutical agents implicated in toxic exposures that were ranked by frequency and category:

B. NON-PHARMACEUTICALS

RANK	TOXIN	NUMBER OF CALLS	% OF TOTAL
1	PLANTS	1,310	10.4
2	COSMETICS/COLOGNE	1,025	8.2
3	SOAPs/DETERGENTS	779	6.2
4	HYDROCARBONS	772	6.2
5	MISC CHEMICALS	621	5.0
6	BLEACH	549	4.4
7	INKS, DYES, PAINTS	517	4.1
8	GASES & FUMES	476	3.8
9	FOOD	474	3.8
10	FOREIGN BODY	449	3.6
11	CLEANERS	437	3.5
12	TOYS SPORTING EQUIPMENT	399	3.2
13	ISOPROPANOL/TOXIC ALCOHOLS	368	2.9
14	ALAKLI	324	2.6
15	TOBACCO/NICOTINE	287	2.3
16	ACIDS	253	2.0
17	ETHANOL	245	2.0
18	MOTHBALLS/DEODORIZERS	227	1.8
19	PESTICIDES	222	1.8
20	GLUE/PASTE/PUTTY	208	1.7
21	THERMOMETER/MERCURY	203	1.6
22	LEAD/HEAVY METALS	196	1.6
23	ORGANOPHOSPHATE/	186	1.5
24	MUSHROOMS	179	1.4
25	FREON	167	1.3
26	SILICA PACKETS	159	1.3
27	FERTILIZERS	157	1.3
28	SALT/MINERALS	142	1.1
29	HYMENOPTERA/INSECTS	129	1.0
30	OFFICE SUPPLIES	124	1.0
31	BUILDING/CONSTRUCTION	120	1.0
32	ETHYLENE GLYCOL/ OTHER GLYCOLS	107	0.9
33	FLUORIDE	105	0.8
34	POWDERS, TALC	88	0.7
35	RODENTICIDES	85	0.7
36	CAMPHOR	78	0.6
37	METHANOL	51	0.4
38	WATER	50	0.4
39	FIRE EXTINGUISHERS	46	0.4

AGENTS INVOLVED

RANK	TOXIN	NUMBER OF CALLS	% OF TOTAL
39	MATCHES/EXPLOSIVES	46	0.4
40	TYPEWRITER CORRECTION/ TCE	44	0.4
41	SNAKES	36	0.3
42	OTHER BITES/STINGS	23	0.2
43	ESSENTIAL OILS	22	
44	TOOTHPASTE	13	0.1
45	SPIDERS	10	<0.1
46	OTHER HOUSEHOLD	8	<0.1
46	HERBICIDES	8	<0.1
47	LACRIMATORS	7	
47	FORMALIN	7	
48	KETONES	5	
TOTALS		12,543	100%

DEATHS

There were 20 deaths recorded by the poison center in 1995, 9 males and 11 females. While the deaths were distributed throughout the year fairly evenly, September was high with 5 deaths recorded during that month. All but one of the deaths involved adults 21 years or older. One 13 year old adolescent died of fulminant hepatic necrosis from an intentional overdose of acetaminophen. Twenty-one different chemicals or drugs were cited as associated with these 20 deaths. Note that citation of a drug or chemical does not necessarily imply that these agents were the cause of death. Also multiple agents were sometimes associated with a single case. Medications were involved in the majority of these deaths.

Agents (Number Of Cases Shown In Brackets):

Acetaminophen (5)	Methanol
Benzodiazepine (3)	Opiate (3)
Bupropion	Phenothiazines
Carbamazepine	Respiradol
Caustic	Sertraline
Cocaine (3)	Theophylline
Cyclobenzaprine	Trazadone
Ethanol (4)	Tricyclic Antidepressants (3)
Ethylene Glycol	Valproic Acid
Haloperidol	Venlafaxime
Lithium	Verapamil

PUBLIC EDUCATION

The System continues to develop new approaches to educating the general public about poisoning prevention. Decentralization of materials and information has continued to be the major mode of Education. This year's efforts were conducted most capably by Ms. Linda Softley, RN, Chair of the Subcommittee on Public Education and Coordinator of Education.

Poison Prevention Week in March, 1995, was met with a thoroughly statewide approach in increasing public awareness via press releases and media interviews.

The System continues to meet its public education goals with a variety of activities. Seasonal and holiday related poisoning prevention announcements have been distributed to the media as a public service on a regular basis. Additionally over 57,000 telephone stickers and 8,000 poison center brochures were distributed throughout the state in 1995. New outreach initiatives include a prevention intervention aimed at homeless families living in public shelters. Another includes the development of more effective educational materials with respect to plant toxicity and pesticides.

A concentration upon targeting more effective media outreach has produced new contacts and increased coverage of important poisoning issues. TV coverage has included: channel 7 -Healthwatch; channel 5; news features; Neighborhood Network News.

“Carbon Monoxide (CO) Poisoning and its prevention” was the chosen focus of attention throughout winter. An education grant to embrace all aspects of a more effective public education outreach initiative is also being explored.

Presentations to various community groups and organizations in 1995 included:

Audience	Location
General Public - Press Conference	Children's Hospital, Boston
Emergency Medical Technicians	Taunton
Emergency Medical Technicians	Dalton
Parents	Local Health Fairs
Parents	Medway
Boston Gas Co Employees	Boston
Emergency Medical Technicians	Boston Area
Students (Franklin Institute)	Boston

Representative interviews presented to local media outlets in 1995 included:

Date	Media	Topic
3/20/95	WCAT	Poison Prevention Week
3/20/95	WKDX	Poison Prevention Week
3/22/95	WNTN	Poison Prevention Week
12/20/95	Cape Cod Times	Carbon Monoxide
12/22/95	WBRK	Holiday Poisonings

PROFESSIONAL EDUCATION & RESEARCH

Staff at the Poison Center continue to provide leadership in the education of health professionals in clinical toxicology here in Massachusetts as well as nationally.

Clinical Toxicology Review (CTR): Now its eighteenth year of publication, the monthly update of the Poison Center, Clinical Toxicology Review, has distributed over 19 volumes comprising 220 individual issues. Our mailing list for Clinical Toxicology Reviews continues to expand internationally; subscriptions are still free to member hospitals and health maintenance organizations within Massachusetts.

Postgraduate Education Outreach: Poison Center staff have been active in providing continuing education lectures and courses for physicians, nurses, pharmacists, emergency medical technicians, and health policy makers. Off-site training seminars, grand rounds, and other educational formats were provided at the following institutions in 1995:

Children's Hospital	Deaconess Hospital
Atlanticare	Metrowest-Framingham
Lynn-Union Hospital	Carney Hospital
Holy Family Hospital	Massachusetts College of Pharmacy Massachusetts
General Hospital	North Shore Children's Hospital
The Cambridge Hospital	Beth Israel Hospital
Littleton-Area EMT's	Norwood Hospital
Southwood Hospital	Baystate Medical Center

Poison-Center Sponsored Courses: The Poison Center has regularly sponsored programs dedicated to updating health professionals concerning specific topics in toxicology. Most recently the Poison Control System cosponsored 2 workshops at the Ambulatory Pediatrics Association annual meeting in Washington D.C. in May, 1996. The workshops were entitled "Environmental Toxins: What Every Parent Wants You To Know" and "The Management of Small Lead Burden In Children."

Physician Training: The Poison Center continues to serve as a training site for health professionals. Both pediatric and adult emergency medicine residents from Boston City Hospital include a one month experience at the Poison Center among their rotations. Pediatric residents and emergency medicine fellows from Children's Hospital continue to join us on elective one-month rotations. Additionally the Poison Center has developed a close collaboration with the toxicology fellowship training program at the University of Massachusetts Medical Center in Worcester. Dr. Robert Fern is the director of the fellowship training program. Drs. Mike Burns Andis Graudins, and Jerry Thomas spent more than three months each in 1995 working on various service and research projects at the Poison Center. The Poison Center continues to welcome guests from other states and internationally who wish to train in clinical toxicology.

Fellowship Training: The Poison Center, in collaboration with Children's Hospital, continues to provide a 2-year fellowship in medical toxicology. This is a highly competitive, sought-after position for physicians-in-training nationwide and qualifies the physician to become board-certified toxicologist. Dr. Carl Baum completed fellowship training in 1995-96 and is affiliated with the Department of Emergency Medicine, Children's Memorial Hospital, Chicago, Illinois Drs. Robert Wright and Holly Perry are the current toxicology fellows. Dr. Holly Perry is the 1995 recipient of the prestigious Texas Toxicology Fellowship Award. This award is presented to 3 promising physician candidates in the United States annually.

EMT Training: A new training program for Massachusetts Emergency Medical Technicians has been developed by Tom Quail, RN, CSPI Specialist in Poison Information. EMT's from throughout Massachusetts will register for a half-day on-site training experience in the Poison Center supervised by senior staff. EMT's can receive up to 4 hours of continuing education units for completion of this course.

PROFESSIONAL EDUCATION & RESEARCH

Research: The Poison Center continues to initiate new research endeavors into many different areas of clinical toxicology including epidemiology, diagnosis, management, and the prevention of poisonings. Recent published research abstracts include:

Baum C, Shannon MW, Woolf AD. Breath alcohol and blood ethanol following use of a cough-cold preparation. *Pediatr Res* 1996;39:130A.

Baum C, Shannon M. Lead-poisoned lactating women have insignificant amounts of lead in breast milk. *Vet Hum Toxicol* 1995.

Greenes D, Wieler J, Woolf A. Which childhood poisonings should we prevent? Implications of poisoning hospitalization charges at a children's hospital. American Academy of Pediatrics spring session, Chicago Illinois, April 1996.

Liebelt E, Shannon M. The efficacy and safety of flumazenil used in children for reversal of benzodiazepine-induced conscious sedation. *Arch Ped Adol Med* 1995;149:P56.

Longobardi Y, Jagminas L, Trainor BJ, Duffy SJ, Wright RO, Lewander WJ, Linakis JG. Comparison of topical anesthetic efficacy of three preparations of TAC and viscous cocaine alone for minor laceration repair in children. Poster Presentation APA annual meeting May 6-10, 1996. *Arch Pediatr Adolesc Med*.

Perry H, Shannon M. The Efficacy of Oral versus Intravenous N-Acetylcysteine (NAC) in pediatric acetaminophen intoxication: results of an open-label clinical trial. *Ped Res* 1995;37:130A.

Shannon M, Woolf A, Graef J. Assessment and management of children exposed to environmental toxins - descriptive analysis of a pediatric environmental toxicology service. *Arch Pediatr Adol Med* 1995;149:122.

Shannon M, Graef J. Lead intoxication in children with pervasive developmental disorders. *Arch Ped Adol Med* 1995;149:P47.

Steele DW, Santucci KA, Wright RO, McQuillen KK, Jay GD. Pulsus paradoxus:an objective measure of severity in croup. APA annual meeting May 6-10, 1996. *Acad Emerg Med*.

Woodard-Jenkins J, Woolf A. Spectrum of toxicity seen in cisapride poisoning. *J Toxicol Clin Toxicol* 1995;33:490.

Woolf A, Pearson K. Presence of diethylene glycol in commercial polyethylene glycol (PEG) solutions. *J Toxicol Clin Toxicol* 1995;33:490.

Woolf A, Berkowitz M, Wieler J, Greenes D. Patterns of costs: Poisoning hospitalizations at a children's hospital. *J Toxicol Clin Toxicol* 1995;33:537-8.

Woolf AD, Chrisanthus K. Are antidotes to treat poisoned children readily accessible? *Arch Pediatr Adol Med* 1995;149:96.

Woolf A, Wieler J, Greenes D. Patterns of poisoning hospitalization charges at a children's facility. Ambulatory Pediatric Association, Washington D.C. May, 1996.

Wright RO, Steele DW, Santucci KA, Jay GD. Pre-and post-treatment oxygen saturation in acute childhood asthma. Poster presentation, APA annual meeting May 6-10, 1996. *Arch Pediatr Adolesc Med*.

Wright RJ, Wright RO, Isaacs NE. Response to battered mothers in the Pediatric emergency department APA annual meeting May 6-10, 1996. *Arch Pediatr Adolesc Med*.

Wright RO, Magnani BJ, Shannon MW, Woolf AD. N-Acetylcysteine reduces methemoglobinemia:an in vitro model. *Pediatr Res* 1996;39:164A.

MASSACHUSETTS POISON CONTROL SYSTEM

PUBLICATIONS 1995-1996

PUBLISHED ARTICLES AND REVIEWS

- (1) Anderson A, Shannon M. Poisonings in Critical Care for Infants and Children. Todres D. J. Eds., Little, Brown and Company 1996.
- (2) Bates BA, Shannon MW, Woolf AD. Ethanol-related visits by adolescents to a pediatric emergency department. *Pediatr Emerg Care* 1995;11:89-92.
- (3) Baum C, Shannon M. Environment toxins - an increasing concern. *Contemporary Pediatrics* 1995;12:20-43.
- (4) Cohen G, Fleming NF, Glatter KA, Haghiri DB, Halberstadt J, McHugh KB, Woolf A. Epidemiology of Substance Abuse in Source Book of Substance Abuse & Addiction eds. Friedman L, Wilkins, Baltimore, Md 1996.
- (5) Henretig F, Shannon MW. Toxicologic Emergencies in Synopsis of Pediatric Emergency Medicine, Fleisher G, Ludwig S, Silverman B, Ed., Williams & Wilkins 1995.
- (6) Liebelt EL, Francis PD, Woolf AD. The value of the electrocardiogram lead aVR versus the QRS interval in predicting seizures and arrhythmias in acute tricyclic antidepressant toxicity. *Ann Emerg Med* 1995;26:195-201.
- (7) Lovejoy FH, Woolf AD. Corrosive ingestions. *Pediatrics In Review* 1995;16:473, 474.
- (8) Perry H, Shannon M. Current approach to pediatric gastrointestinal decontamination. *Ped Annals* 1996;25:19-26.
- (9) Shannon MW, Maher T. Anticonvulsant effects of intracerebroventricular Adenocard in theophylline-induced seizures. *Ann Emerg Med* 1995;26:65-68.
- (10) Shannon MW. Herbal medicine - the aconites. *Clinical Toxicology Review* 1995;17(4):1-2.
- (11) Shannon M. Poisonings in Critical Care for Infants and Children. Todres ID, Fugate. J. Eds., Little Brown and Company 1996.
- (12) Shannon MW. Petroleum Distillates in The Clinical Practice of Emergency Medicine. A. Harwood-Nuss, Ed. 2nd Edition, JB Lippincott 1966.
- (13) Shannon MW. Chloramphenicol, Disulfiram, Disc Batteries, Metronidazole, Isoniazid in Encyclopedia of Toxicology. P Wexler, Ed., Appleton & Lange, 1996.
- (14) Shannon M. Inhalants. In Source Book of Substance Abuse and Addiction in Friedman L, Fleming N, Roberts D, Hyman S., Eds. Williams & Wilkins 1996.
- (15) Shannon M, Graef J. Lead intoxication in children with pervasive developmental delays. *J Toxicol Clin Tox* 1996;34:177-182.
- (16) Shannon MW. Methylxanthines in Intensive Care Medicine, Little, Brown & Co, Boston, 1996.
- (17) Steele DW, Wright RO, Lee C, Jay GD. Continuous, noninvasive measurement of pulsus paradoxus: a pilot study. *Acad Emerg Med* Oct. 1995;2:894-900.

MASSACHUSETTS POISON CONTROL SYSTEM

PUBLICATIONS 1995-1996

PUBLISHED ARTICLES AND REVIEWS

- (18) Woolf AD. Cocaine: An Update. *Clinical Toxicology Review* 1995;17:1-2.
- (19) Woolf AD, Shannon MW. Clinical Toxicology for the pediatrician. *Pediatr Clin NA* 1995;42:317-333.
- (20) Woolf AD. Ginger Jakes & the blues: a tragic song of poisoning. *Vet Human Toxicol* 1995;37:252-4.
- (21) Woolf AD, Liebelt E, Berkowitz ID. Chapter 40: Poisoning and The Critically Ill Child in Critical Care Medicine eds. Rodgers C, Fackler JC, W.B. Saunders Co., Phil, 1996.
- (22) Woolf AD, Lovejoy FH Jr. Digitalis, in Human Toxicology ed. Pr Jacques Descotes, Elsevier Press, Amsterdam, The Netherlands, 1996.
- (23) Woolf AD. Isoniazid in The Clinical Practice of Emergency Medicine, Second Edition. eds. Harwood-Nuss A, Linden C, Luten R, Sternback G, Wolfson A: J.B. Lippincott Co., Phil., Pa 1996.
- (24) Woolf AD. Digitalis intoxication: therapy with digoxin-specific antibody fragments. *Clinical Immunotherapeutics* 1995;4:312-330.
- (25) Woolf AD, Lovejoy FH. Principles of Toxin Assessment and Screening in Pediatric Critical Care, 2nd Ed eds. Fuhrman B.P. and Zimmerman J.J., The C.V. Mosby Co., St. Louis, 1996.
- (26) Woolf AD. Absinthe. *Clinical Toxicology Review* 1995;18(3):1,2.
- (27) Woolf AD. Carisoprodol. *Clinical Toxicology Review* 1995;17(12):1-2.
- (28) Woolf AD. Disaster planning - our finest hour? *J Toxicol Clin Toxicol* 1996;34:59,60.
- (29) Wright RO, Wang RY. Poison antidotes: guidelines for rational use in the emergency department. *Emerg Med Reports*. 1995;16(21):201-212.
- (30) Wright RO. Amnestic shellfish poisoning (Domoic Acid poisoning) *Clinical Toxicology Review*. 1995;17(10):1-2.

MASS. PCI. 1:496

1996
Annual
Statistical
Report



Massachusetts
Poison Control
System

Designated as the Regional Poison Information Center for Massachusetts by the Massachusetts Legislature, the Massachusetts Department of Public Health, and the American Association of Poison Control Centers.

GOVERNMENT DOCUMENTS
COLLECTION

NOV 03 1997

University of Massachusetts
Depository Copy



Massachusetts Poison Control Center
300 Longwood Avenue
Boston, Ma 02115

INSERT~ CALLERS - CITIES & TOWNS

The Poison Center received 41,712 poisoning-related calls in 1996, almost 3,000 more calls than in 1995. These poisoning exposures calls included 8525 calls from health professionals and 33,187 calls from the general public. There were approximately 4200 calls for whom a telephone number was not given or who were calling from out of state.

The penetration rate of the Poison Center overall (information + exposure calls) was 11.0 calls per 1000 population in 1996,(town population figures from 1995 Department of Health census data). Penetration rate for poisoning exposure calls alone was 7.0 calls per 1000 population. The frequency of calls from selected major cities and towns in Massachusetts follows (only includes cities generating ≥ 200 calls)

	<u>CITY</u>	<u>CALLS</u>	<u>PENETRATION RATE*</u>
1.	BOSTON	2691	4.5
2.	WORCESTER	1033	6.3
3.	SPRINGFIELD	928	6.2
4.	BROCKTON	910	10.2
5.	BROOKLINE	827	15.7
6.	LAWRENCE	727	11.3
7.	NEW BEDFORD	717	7.5
8.	CAMBRIDGE	647	6.9
9.	LOWELL	587	5.9
10.	FALL RIVER	578	6.5
11.	HAVERHILL	552	10.4
12.	TAUNTON	507	10.3
13.	QUINCY	479	5.5
14.	WEYMOUTH	462	8.1
15.	ATTLEBORO	462	7.7
16.	LYNN	418	5.4
17.	FRAMINGHAM	395	5.9
18.	NEWTON	386	4.6
19.	HOLYOKE	382	9.4
20.	WALTHAM	378	6.5
21.	MELROSE	350	12.5
22.	PITTSFIELD	339	7.3
23.	SOMERVILLE	317	4.5
24.	BEVERLY	314	8.3
25.	SALEM	291	7.5
26.	MEDFORD	284	5.1
27.	MALDEN	276	5.2
28.	HYANNIS	273	6.2
29.	EVERETT	272	7.8
30.	NEWBURYPORT	263	15.4
31.	WESTFIELD	263	6.7
32.	PLYMOUTH	255	5.6
33.	DANVERS	253	10.2
34.	NATICK	252	8.0
35.	ARLINGTON	251	5.8
36.	NORWOOD	250	8.5
37.	FRANKLIN	247	10.4
38.	PEABODY	242	5.1
39.	MARLBORO	239	7.1
40.	REVERE	234	5.3
41.	NORTHAMPTON	223	7.7
42.	BRAINTREE	223	6.4
43.	FITCHBURG	221	5.5
44.	MILFORD	217	8.5
45.	NEEDHAM	214	7.6
46.	ROCKLAND	208	13.3
47.	BILLERICA	208	5.3
48.	FALMOUTH	200	6.7

EXECUTIVE SUMMARY

The Massachusetts Poison Control System (MPCS), founded in 1955 and regionalized for Massachusetts in 1978, continues to enjoy the support of both the state and the member institutions as a public-private partnership. Under the leadership of Commissioner David Mulligan and the Department of Public Health, the state provided 70% of the Poison Center's \$720,000 operating budget. The original six consortium institutions which organized the System: Boston City Hospital, New England Medical Center, Children's Hospital, the Massachusetts College of Pharmacy and Allied Health Sciences, Massachusetts General Hospital, and the University of Massachusetts Medical Center continue their support. Seventy-seven member institutions, represented by the Massachusetts Hospital Association and the Massachusetts Association of Health Maintenance Organizations, provide the additional revenues needed to run the Poison Center. It is estimated that each poisoning consultation or information call cost \$8.70 in 1996. If no poison center existed, it is estimated that 63% of suspected ingestions would self refer to medical services as opposed to 13% self-referral and 10% poison center referral when the poison center exists. This translates into 16,685 excess medical visits (assume 80% emergency department at \$150/visit and 20% physician's office at \$60/visit) or \$2,300,000 in extra health care expenses. When subtracted from the poison center's budget, there was a savings of almost \$1,600,000 in unnecessary health expenditures in 1996 attributable to the existence of the Massachusetts Poison Center.

During 1996, the Poison Center received 41,712 poisoning-related telephone calls, with children under 5 years of age accounting for over 57% of the total. Total volume, including follow-up calls as well as informational inquiries, reached over 82,700 calls. Most poisonings occurred in the home; however more than 13% of the calls to the Poison Center came from health care facilities such as hospitals and health centers. More than 3590 poisonings (9.2%) were judged potentially severe or life-threatening; 18 deaths were reported.

Besides this tremendous volume of service, the MPCS continues to develop initiatives to prevent poisonings. New efforts at public education have been organized with the Museum of Science in Boston. Additionally telephone stickers and brochures were distributed through civic and health organizations. A TDD telephone system has been installed to serve deaf and hearing-impaired clients. The System also seeks to improve poisoning management through an extensive program of professional education and research. More than 50 health professionals annually receive training at the Poison Center. Lectures and workshops in clinical toxicology were presented at over 20 health care institutions in the state in 1996. The MPCS is among the top U.S. poison centers in research productivity, with 40 scientific reviews and original papers published or in press in 1996-97 alone. It has also developed a model fellowship program for training future toxicologists.

Massachusetts can be proud of its certified Poison Control System: a national leader in service, education, and research.

POISON CENTER FACTS AT A GLANCE

1. The Poison Center received 41,712 poisoning-related calls in 1996, an increase of 2973 poisoning calls (7.7%) over 1995.
2. Children 2 years and younger accounted for 17,408 poisoning calls or almost 42% of the total.
3. The Poison Center also received 25,319 information calls; and specialists made 15,672 follow-up calls. Total telephone volume in 1996 was 82,703 incoming and outgoing calls. The high volume of total telephone activity has increased from the telephone volume of 1995 by 4,196 calls.
4. Operations at the Poison Center cost \$720,000 in Fy96 (July 1996 to June 1997) for direct expenses only. Of this budget, more than 90% was spent on personnel. The Poison Center expenses represent a cost of \$8.70 per poisoning or information call. The Poison Center accounted for \$1,600,000 savings in unnecessary health services utilization averted in Massachusetts in 1996.
5. There were 18 deaths related to poisoning reported to the Poison Center in 1996 (<0.05% total poisoning call volume).

STAFF

Director

Alan D. Woolf, M.D., M.P.H.

Assistant Director

Open

Staff Toxicologist

Michael Shannon, M.D., M.P.H.

Administrator

Anne Vaccaro

Administrative Associate II

Barbara J. Bennett

Coordinator, Pharmacy Student Education

Keith Chrisanthus, R.Ph., C.S.P.I.

Coordinator, Public Education

Judith Shaw, R.N.

Clinical Fellows

Michele Burns, M.D. (starts July, 1997)

Sophia Dyer, M.D. (starts July, 1997)

Holly Perry, M.D. (ends June, 1997)

Robert Wright, M.D. (ends June 1997)

Poison Center Consultant

Kim Pearson, M.D.

Off-Site Consultants

Mike Burns, M.D.

Rose Goldman, M.D.

John Graef, M.D.

Stephen Kales, M.D.

Sam Lesko, M.D.

Barbarajean Magnani, M.D., Ph.D.

Allen A. Mitchell, M.D.

Arnold Soslow, M.D.

Chief Specialist, Poison Information

Judith Woodard-Jenkins, R.N., C.S.P.I.

Senior Specialists, Poison Information

Arlyne Barnett, R.N., C.S.P.I.

Safiyya Mason, R.N., C.S.P.I.

Tom Quail, R.N., C.S.P.I.

Adina Sheroff, R.N., C.S.P.I.

Specialists, Poison Information

Anita Bijan, R.Ph., C.S.P.I.

Kristine Cafferky, R.N., C.S.P.I.

Robert Hallisey, R.Ph.

David Gaigal, R.Ph., C.S.P.I.

Villiscent Puran, R.Ph.

Bette Pyne, R.N.

Virginia Fortin, R.N.

Mary Houlihan, R.N.

William Partridge, R.N., C.S.P.I.

James Rorick, R.Ph.

Deborah Abrahams, R.N.

Michael Scanlon, R.N.

Susan Bevacqua, R.N.

Elizabeth Wilson, R.Ph.

Kenny Menmuir, R.Ph.

ADVISORY BOARD MEMBERS

Chair

Bob Masters, MD
88 East Newton Street
F209
Boston, MA 02118
617-638-7062
617-965-0435 (fax)

MaryAnn Manno
Pediatric Emergency Medicine
55 Lake Ave North
Worcester, MA 01655
508-856-2599
508-856-1780 (fax)

Peter Goldman, MD
Maxwell Finland Professor of Clinical
Pharmacology
Harvard School of Public Health
677 Huntington Avenue
Boston, MA 02115
617-432-2260
617-432-2435 (fax)

Ron Kleinman, MD
Mass General Hospital
55 Fruit Street
VBK Bldg. 107
Boston, MA 02114-2699
617-726-2930
617-724-2710 (fax)

Timothy Maher, PhD
Associate Professor
Mass College of Pharmacy and Allied Health
Sciences
179 Longwood Avenue
Boston, MA 02116
617-732-2940
617-732-2963 (fax)

Phillip Pizzo, MD
Physician-in-Chief
The Children's Hospital
300 Longwood Ave
Boston, MA 02115
617-355-7681
617-738-7066 (fax)

Victoria Ozonoff
Dept. of Public Health
250 Washington Street
Boston, MA 02108
617-624-5425
617-624-5075 (fax)

Janet Berkenfield
Office of Emergency Medicine
250 Washington Street
4th Floor
Boston, MA 02108
617-624-5431
617-624-5075 (fax)

Deborah KleinWalker
Dept. of Public Health
250 Washington Street
5th Floor
Boston, MA 02108
617-624-6090
617-624-6062 (fax)

Howard Spivak, MD
Associate Professor
Department of Pediatrics
New England Medical Center
171 Harrison Avenue
Boston, MA 02218
617-956-5241
617-636-7719 (fax)

Ex officio
Alan D. Woolf, MD MPH
Director, Mass Poison Control System
300 Longwood Avenue
Boston, MA 02115
617-355-6609
617-738-0032 (fax)

Joseph Kirkpatrick
Mass Hosp Assoc
5 New England Exec. Park
Burlington, MA 01803
617-272-8000
617-270-3521 (fax)

Fred Lovejoy, MD
Department of Medicine
Children's Hospital
Boston, MA 02115
617-355-6605
617-738-7066 (fax)

Commissioner David Mulligan
Dept. of Public Health
250 Washington Street
2nd Floor
Boston, MA 02108
617-624-6000
617-624-5206 (fax)

Linda Doctor
Dept. of Public Health
250 Washington Street
Boston, MA 02108-4619
617-624-5483
617-624-5075 (fax)

Allen Mitchell, MD
Associate Director,
Sloan Epidemiology Unit
Boston University
School of Medicine
1371 Beacon Street
Brookline, MA
617-734-6006

Arnold Soslow, MD
Director, Corporate Health Program
Metrowest Medical Center
115 Lincoln Street
Framingham, MA 01701
508-383-1120
508-383-1125 (fax)

Laurie Allen
MA Association of HMO's
18 Tremont Street
Suite 305
Boston, MA 02108
617-523-3300
617-523-0344 (fax)

MEMBER AFFILIATES

Addison Gilbert Hospital
Athol Memorial Hospital
Baystate Medical Center
Berkshire Medical Center
Beth Israel Hospital
Beverly Hospital
Boston Regional Medical Center
Boston City Hospital
Brigham & Women's Hospital
Brockton Hospital
Cambridge Hospital
Cape Cod Hospital
Carney Hospital
Charlton Memorial Hospital
Children's Hospital
Cooley Dickinson Hospital
Deaconess Glover Hospital
Deaconess Nashoba Hospital
Emerson Hospital
Veterans Hospitals
Fairview Hospital
Fallon Healthcare System
Falmouth Hospital
Faulkner Hospital
Franciscan Children's Hospital
Franklin Medical Center
Good Samaritans Medical Center
Harrington Memorial Hospital
Harvard University Health Services
Harvard Comm. Hlth Plan Foundation
Hale Haverhill Hospital
Heywood Hospital
Hillcrest Hospital
Holy Family Hospital
Health New England
Hubbard Regional Hospital
Jordan Hospital
Lahey Clinic Medical Center
Lawrence General Hospital
Lawrence Memorial Hospital
Lowell General Hospital
Malden Hospital
Marlborough Hospital
Mary Lane Hospital
Mass Eye & Ear Infirmary
Mass College of Pharmacy
Mass General Hospital
Mass Institute of Technology
McLean Hospital
Medical Center at Symmes
Melrose-Wakefield Hospital
Metro-West Medical Center
Milford-Whitinsville Hospital
Milton Hospital
Morton Hospital & Med Center
Mount Auburn Hospital
Nantucket Cottage Hospital
New England Deaconess Hospital
New England Medical Center
New England Baptist Hospital
Newton Wellesley Hospital
Noble Hospital
North Shore Medical Center
North Adams Regional Hospital
Norwood Hospital
Quincy Hospital
Saints Memorial Medical Center
Somerville Hospital
South Shore Hospital
Southwood Community Hospital
St. Elizabeth's Medical Center
St. Luke's Hospital New Bedford
St. Vincent's Hospital
Tobey Hospital
Tuft's University Medical School
U Mass Medical Center
Whidden Memorial Hospital
Winchester Hospital
Wing Memorial Hospital

INTRODUCTION

The Massachusetts Poison Control System, founded in 1955 and regionalized in 1978, is one of the oldest and most active poison centers in the United States. The original six consortium institutions which organized this system: the Boston City Hospital, Tufts University Medical School, the Children's Hospital, the Massachusetts College of Pharmacy and Allied Health Sciences, New England Medical Center, and the University of Massachusetts Medical School all continue their active support.

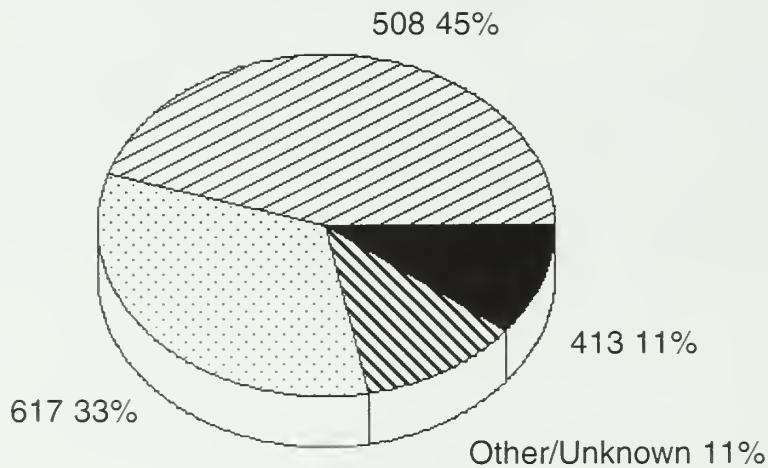
This, the nineteenth year of support by Member Institutions, saw 80 hospitals and health maintenance organizations contributing to the operating budget. The Member Institutions now contribute approximately 20% of the System's operating budget. The Department of Public Health contributes 68% of the budget.

MISSION STATEMENT

The primary mission of the system continues to be that of providing the highest calibre of assistance and expertise in the medical diagnosis and management of poisoning cases involving the citizens of the Commonwealth of Massachusetts. Additionally the MPCS seeks to improve the quality of medical care given to potentially poisoned patients by maintaining an unparalleled standard of excellence in both clinical research activities and professional education endeavors. Finally it is integral to the mission of the MPCS that it serve the Commonwealth as a lead agency in the development of innovative strategies to prevent unnecessary injuries due to intentional and unintentional poisonings and toxic exposures.

GEOGRAPHIC DISTRIBUTION

More than 67,031 poisoning-related exposure or inquiry calls were reported to the Massachusetts Poison Center in 1996, representing an increase of 5% over the call volume in 1995. Within this total, there were 33,187 (79.6%) exposure calls from the public and 8,525 (20.4%) calls concerning poisoned patients being treated by health professionals (Total:41,712 exposure calls). There were an additional 25,319 inquiry calls about poisons, where no exposure had taken place. Of the exposure calls only, 45% were from 508 area code, 33% from the 617 area code, 11% from the 413 area code, and 11% of calls were from unknown telephone numbers or from out of state.



Calls by Area Code
N-38,739

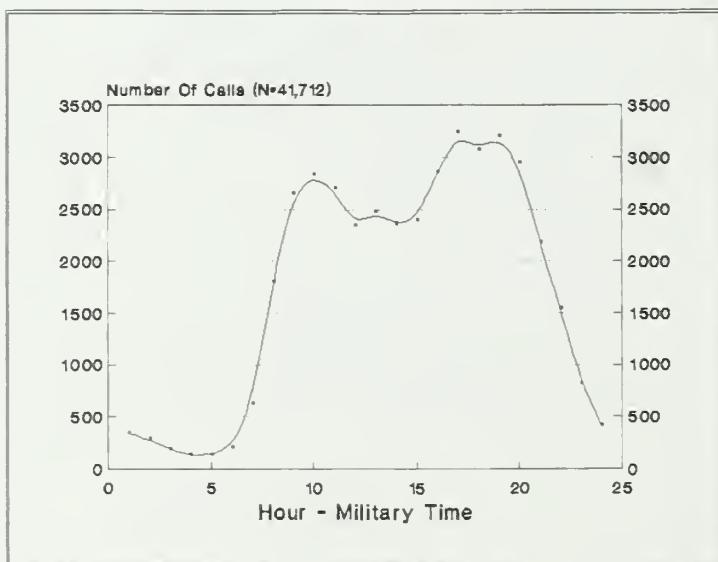
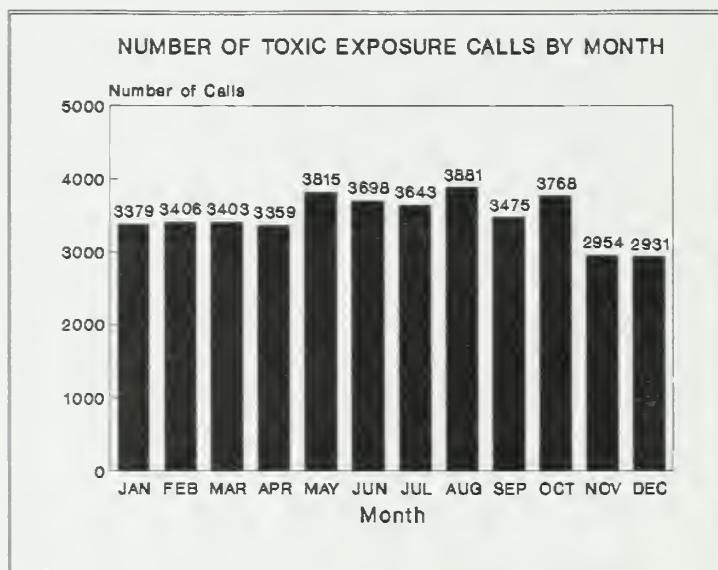
AGE & SEX

The peak ages for victims of poisoning are children 0-3 years old and adolescents 13-19 years old. While there was little gender difference among early childhood exposures, more males than females of school age were involved in poisonings. Also more female than male adolescents were involved in poisonings at a ratio of 1.5:1.

<u>AGE (YEARS)</u>	<u>FEMALES</u>	<u>MALES</u>	<u>TOTAL</u>	<u>%</u>
<1	1249	1338	2587	6.2
1	3403	3772	7175	17.2
2	3491	4155	7646	18.3
3	1721	2030	3751	9.0
4	746	922	1668	4.0
5	381	526	907	2.2
6-12	1208	1760	2968	7.1
13-19	1789	1191	2980	7.1
20-29	1322	1045	2367	5.7
30-39	1328	1105	2433	5.8
40-49		702	1628	3.9
50-59	442	301	743	1.8
60		190	469	1.1
>70		236	725	1.7
 SUBTOTAL	 18774	 19273	 38047	 91.2
 UNK	 2044	 621	 2665	 8.8
 TOTALS	 20,818	 20,894	 41712	 100%

CALL VOLUME CHARACTERISTICS

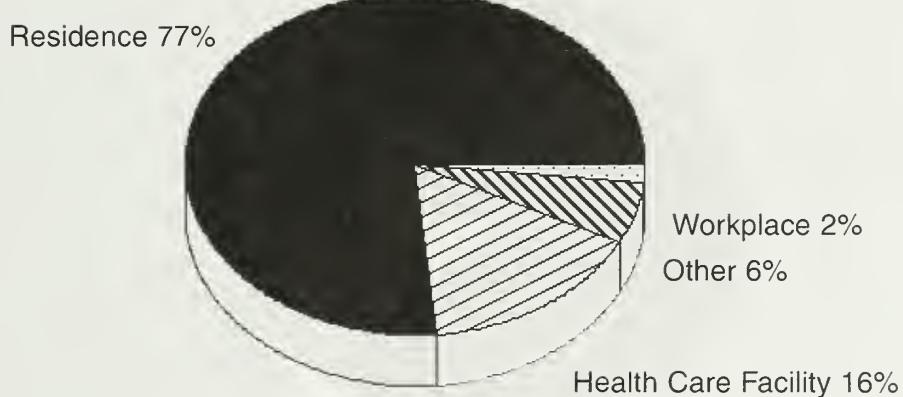
The largest volume of exposure calls was received during May and August; the least number during November. The exposure calls show a varied distribution for time of day with peak periods of calling frequency during 9:00-10:00 A.M. and 4:00-8:00 P.M. at night. By contrast, less than 5% of exposure calls were received between midnight and 7:00 A.M.



SITE OF CALLER

Over 90% of people seeking the Poison Center's advice for a potentially toxic exposure were calling from either a private residence or a health care facility.

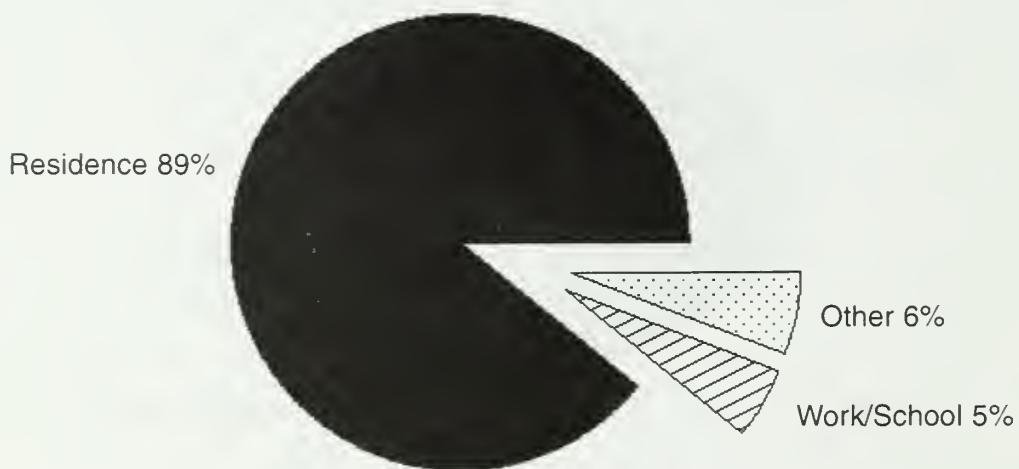
<u>CALLER SITE</u>	<u>NUMBER OF CALLS</u>	<u>% OF TOTAL</u>
OWN RESIDENCE	31,036	74.4%
OTHER RESIDENCE	877	2.1%
HEALTH CARE FACILITY	6,634	15.9%
WORKPLACE	777	1.9%
SCHOOL	224	0.5%
PUBLIC AREA	122	0.3%
OTHER/UNKNOWN	2,042	6.8%
TOTALS	41,712	100%



SITE OF EXPOSURE

The most frequent site of exposure to a potential toxin continues to be the victim's own residence. However the Poison Center also received an important number of calls concerning occupational exposures or exposures at schools, other public areas such as restaurants, or health care facilities as well.

SITE OF EXPOSURE	NUMBER	% OF TOTAL
OWN HOME	35,492	85.1%
OTHER RESIDENCE	1,685	4.0%
WORKPLACE	1,056	2.5%
SCHOOL	1,025	2.5%
OTHER PUBLIC AREA	431	1.0%
HEALTH CARE FACILITY	136	0.3%
OTHER/UNKNOWN	1,768	4.3%
TOTALS	41,712	100%



CALLERS — HEALTH PROFESSIONALS

The Poison Center received 8,525 calls (20.4% of the total) from over 120 hospitals and many other health-related institutions within Massachusetts in 1996. Besides hospitals, other large clients of the Poison Control System included The Fallon Clinic, Harvard Pilgrim Health Plan, Harvard University Health Services, and the University of Massachusetts at Amherst. Physicians' offices, health centers, walk-in clinics, mental health facilities, nursing homes, correctional institutions, and homes for the retarded were other important users of poison center services.

NUMBER	RANK	CALLS	HOSPITAL
1	1	265	BOSTON MEDICAL CENTER
2	2	195	BROCKTON HOSPITAL
3	3	185	CHILDREN'S HOSPITAL
4	4	175	THE CAMBRIDGE HOSPITAL
5	5	169	HALE HOSPITAL
6	6	153	SOUTH SHORE HOSPITAL
7	7	139	GOOD SAMARITAN HOSPITAL
8	8	132	BAY STATE MEDICAL CENTER
9	9	129	BETH ISRAEL HOSPITAL
10	10	126	HOLY FAMILY HOSPITAL
11	11	109	WINCHESTER HOSPITAL
12	11	109	HEYWOOD HOSPITAL
13	12	108	WHIDDEN MEMORIAL HOSPITAL
14	13	107	ST. LUKE'S HOSPITAL NEW BEDFORD
15	14	102	BOSTON REGIONAL MEDICAL CENTER
16	15	91	MELROSE-WAKEFIELD HOSPITAL
17	16	89	ANNA JAQUES HOSPITAL
18	17	87	ST. ELIZABETH'S HOSPITAL
19	18	86	NOBLE HOSPITAL
20	19	85	HARRINGTON HOSPITAL
21	20	83	NORTH SHORE CHILDREN'S HOSPITAL
22	20	83	MASSACHUSETTS GENERAL HOSPITAL
23	21	80	JORDAN HOSPITAL
24	22	79	CARNEY HOSPITAL
25	23	78	MORTON HOSPITAL
26	24	73	BRIGHAM & WOMEN'S HOSPITAL
27	25	72	CHARLTON MEMORIAL HOSPITAL
28	25	72	BEVERLY HOSPITAL
29	26	71	METROWEST FRAMINGHAM HOSPITAL
30	26	71	CAPE COD HOSPITAL
31	27	69	DEACONESS-WALTHAM HOSPITAL
32	28	65	NORWOOD HOSPITAL
33	28	65	LAWRENCE GENERAL HOSPITAL
34	29	60	MALDEN HOSPITAL
35	29	60	FALMOUTH HOSPITAL
36	30	59	BERKSHIRE MEDICAL CENTER
37	31	53	LOWELL GENERAL HOSPITAL
38	32	52	QUINCY HOSPITAL
39	32	52	SALEM HOSPITAL
40	33	50	MOUNT AUBURN HOSPITAL
41	34	48	SOMERVILLE HOSPITAL
42	35	46	DEACONESS NASHOBA HOSPITAL
43	35	46	LYNN UNION HOSPITAL
44	36	45	ATHOL HOSPITAL
45	36	45	MERCY HOSPITAL
46	37	44	MILTON HOSPITAL
47	38	44	SAINT'S HOSPITAL-ST JOHN

CALLERS — HEALTH PROFESSIONALS

48	39	41	ADDISON-GILBERT HOSPITAL
49	40	39	FRANKLIN MEDICAL CENTER
50	41	37	SOUTHWOOD HOSPITAL
51	42	36	FAULKNER HOSPITAL
52	42	36	LAHEY BURLINGTON CENTER
53	42	36	HOLYOKE HOSPITAL
54	43	34	NEW ENGLAND MEDICAL CENTER
55	43	34	NEWTON-WELLESLEY HOSPITAL
56	44	31	LAHEY SYMMES HOSPITAL
57	45	30	WING MEMORIAL HOSPITAL
58	45	30	LAWRENCE MEMORIAL HOSPITAL
59	46	29	ST. VINCENT HOSPITAL
60	47	28	HUBBARD HOSPITAL
61	47	28	NORTH ADAMS REGIONAL HOSPITAL
62	47	28	METROWEST NATICK MEDICAL CENTER
63	48	26	UNIVERSITY HOSPITAL
64	48	26	MILFORD HOSPITAL
65	49	25	COOLEY-DICKENSON HOSPITAL
66	49	25	PROVIDENCE HOSPITAL
67	50	23	HILLCREST HOSPITAL
68	51	22	MARTHA'S VINEYARD HOSPITAL
69	51	22	WORCHESTER MEMORIAL HOSPITAL
70	52	21	NANTUCKET COTTAGE HOSPITAL
71	53	18	VA HOSPITAL-JAMAICA PLAIN
72	53	18	ST. ANNE'S HOSPITAL
73	54	16	FAIRVIEW HOSPITAL
74	55	15	HUNT HOSPITAL
75	56	14	EMERSON HOSPITAL
76	57	13	GLOVER HOSPITAL
77	57	13	LAHEY-PEABODY HOSPITAL
78	58	11	LEOMINSTER HOSPITAL
79	58	11	VA HOSPITAL-NEW BEDFORD
80	58	11	CLINTON HOSPITAL
81	58	11	NEW ENGLAND DEACONESS HOSPITAL
82	59	10	MARY LANE HOSPITAL
83	59	10	VA HOSPITAL-WEST ROXBURY
84	60	9	U MASS-WORCESTER
85	61	8	STURDY MEMORIAL HOSPITAL
86	61	8	WILMINGTON REGIONAL MEDICAL CENTER
87	61	8	VA HOSPITAL-BROCKTON
88	61	8	MARLBOROUGH HOSPITAL
89	62	7	BURBANK HOSPITAL
90	63	6	CABLE HOSPITAL
91	64	5	MILFORD-WHITINSVILLE HOSPITAL
92	65	4	SPRINGFIELD HOSPITAL
93	65	4	NEW ENGLAND BAPTIST HOSPITAL
94	65	4	VA HOSPITAL-NOTHAMPTON
95	66	3	ATLANTICARE HOSPITAL
96	66	3	FRANCISCAN CHILDREN'S HOSPITAL
97	66	3	SAINTS-ST. JOSEPH'S HOSPITAL
98	67	2	SHRINER'S BURN UNIT
99	67	2	WINTHROP HOSPITAL
100	68	1	MA EYE & EAR INSTITUTE
101	68	1	HANSCOMB AFB

CALLERS — HEALTH PROFESSIONALS

102	68	1	DANA FARBER HOSPITAL
103	68	1	TOBEY HOSPITAL
		200	OTHER MA HOSPITALS
SUB TOTALS		5274	

The Poison Center also received more than 1200 calls from medical clinics and health maintenance organizations in Massachusetts during 1996 including:

CLINIC	# OF CALLS	% OF TOTAL
PHYSICIAN'S OFFICES	684	55.2%
HEALTH CENTERS	239	19.3%
HARVARD PILGRIM HEALTH PLAN	178	14.4%
FALLON HEALTH SYSTEM	49	4.0%
HARVARD U. HEALTH SERVICES	19	1.5%
MGH CHELSEA SATELLITE	18	1.5%
U MASS AMHERST HEALTH SERVICE	17	1.4%
MIT INFIRMARY	10	0.8%
MEDICAL WEST HEALTH CENTER	8	0.6%
KAISER CLINIC	2	<0.1%
TUFT'S U. HEALTH CENTER	1	<0.1%
OTHER FACILITIES	14	1.1%
SUBTOTALS	1239	100%

The Poison Center also received a number of calls from other health professionals in Massachusetts:

CLINIC	# OF CALLS	% OF TOTAL
SCHOOLS	706	37.2%
EMT'S & AMBULANCES	288	15.2%
NURSING HOMES	269	14.2%
MENTAL HEALTH FACILITIES	230	12.1%
CENTERS FOR THE AUTISTIC	197	10.4%
PHARMACIES	44	2.3%
CAR PHONES	38	2.0%
SHELTERS	34	1.8%
OTHER HOTLINES	14	0.7%
MACLEAN HOSPITAL	12	0.6%
LEMUEL SHATTUCK HOSPITAL	12	0.6%
SOLOMON CENTER	3	0.2%
WESTBOROUGH STATE HOSPITAL	3	0.2%
HEBREW REHABILITATION	3	0.2%
TEWKSBURY HOSPITAL	3	0.2%
WORCESTER STATE HOSPITAL	2	0.1%
WESTWOOD LODGE	2	0.1%
BRAINTREE HOSPITAL	2	0.1%
SPAULDING REHABILITATION	1	<0.1%
YOUVILLE HOSPITAL	1	<0.1%
ADCARE CENTER	1	<0.1%

CALLERS — HEALTH PROFESSIONALS

ARBOR HOSPITAL	1	<0.1%
BALDPATE HOSPITAL	1	<0.1%
FULLER HOSPITAL	1	<0.1%
PEMBROKE FACILITY	1	<0.1%
OTHER FACILITIES	26	1.4%
 SUBTOTAL	 1895	 100%

The Massachusetts Poison Center also received 117 calls from out-of-state health professionals in 1996 including:

FACILITY	# OF CALLS	% OF TOTAL
SOUTHERN NEW HAMPSHIRE HEALTH CENTER	84	71.8%
CONCORD HOSPITAL (NH)	11	9.4%
ELLIOTT HOSPITAL (NH)	4	3.4%
OUT-OF-STATE POISON CENTERS	4	3.4%
EXETER HOSPITAL (NH)	3	2.6%
MEMORIAL HOSPITAL (NH)	2	1.7%
CATHOLIC MEDICAL CENTER (NH)	2	1.7%
WENTWORTH DOUGLAS (NH)	1	0.65%
PORTSMOUTH HOSPITAL (NH)	1	0.65%
CENTRAL MAINE MEDICAL CENTER	1	0.65%
MAYO HOSPITAL (MAINE)	1	0.65%
OTHER OUT-OF-STATE	3	3.4%
 SUBTOTAL	 117	 100%

AGENTS INVOLVED

A total of 41,712 agents were listed as first toxins implicated in the poisoning calls taken in 1996. Of these 7,395 pharmaceuticals and 13,411 other agents were identified by code and ranked by frequency.

A. PHARMACEUTICALS

RANK	DRUG	NUMBER OF CALLS	% OF TOTAL
1	ACETAMINOPHEN	1256	17.0%
2	TOPICAL PREPARATIONS	781	10.6%
3	NON-STEROIDAL ANTI-INFLAMMATORY	557	7.5%
4	ANTIHISTAMINES	540	7.3%
5	BENZODIAZEPINES	519	7.0%
6	VITAMINS	512	6.9%
7	COUGH/COLD PREPARATIONS	331	4.5%
8	ANTIDEPRESSANTS	313	4.2%
9	SALICYLATES	269	4.0%
10	OTHER/UNKNOWN DRUG	250	3.4%
11	NARCOTICS OTHER	248	3.4%
12	ANTIMICROBIALS	210	2.8%
13	ANTACIDS/GI PREPARATIONS	180	2.4%
14	HORMONES	139	1.9%
15	CARBAMAZEPINE	116	1.6%
16	COCAINE/AMPHETAMINES	100	1.4%
17	LITHIUM	93	1.3%
18	PHENOTHIAZINES	90	1.2%
19	ENT PREPARATIONS	88	1.2%
20	ANTICONVULSANTS	78	1.1%
21	CATHARTICS	75	1.0%
22	CAFFEINE	69	0.9%
23	CARDIOVASCULAR DRUGS	58	0.8%
24	PHENYTOIN	51	0.7%
25	BARBITURATES	49	0.7%
26	CLONIDINE	49	0.7%
27	OTHER SEDATIVES	46	0.6%
28	MUSCLE RELAXANTS	42	0.6%
29	THEOPHYLLINE	40	0.5%
30	CALCIUM CHANNEL BLOCKERS	35	0.5%
31	BETA BLOCKERS	34	0.5%
32	DIGITALIS	34	0.5%
33	ANTI-CHOLINERGICS	29	0.4%
34	OPIATES	27	0.4%
35	MISC SUBSTANCES OF ABUSE	24	0.3%
36	ISONIAZID	17	0.2%
37	ANESTHETICS	14	0.2%
38	DIURETICS	12	0.2%
39	MAO INHIBITORS	11	0.1%
40	L-DOPA	4	<0.1%
41	ALKALOIDS	3	<0.1%
42	DAPSONE	1	<0.1%
TOTALS		7395	100%

PUBLIC EDUCATION

The System continues to develop new approaches to educating the general public about poisoning prevention. Decentralization of materials and information has continued to be the major mode of education. This year's efforts were conducted most capably by Ms. Judith Shaw, RN, MPH, Chair of the Subcommittee on Public Education and Coordinator of Education.

Poison Prevention Week in March, 1996, was met with a thoroughly statewide approach in increasing public awareness via press releases and media interviews. A poison prevention checklist was distributed at five Star Markets during the week. The checklist was mailed to over 200 pharmacies throughout the state to be distributed that week. Educational displays and give-aways took place at Carney Hospital, Children's Hospital, Newton Wellesley Hospital and Eaton Apothecary Pharmacy, Wellesley, MA.

The System continues to meet its public education goals with a variety of activities. Seasonal and holiday related poisoning prevention announcements have been distributed to the media as a public service on a regular basis. Additionally over 57,000 telephone stickers and 8,000 poison center brochures were distributed throughout the state in 1996. Many of the public education materials were updated and revised. A concentration upon targeting more effective media outreach has produced new contacts and increased coverage of important poisoning issues. TV coverage has included: channel 5 - chronicle; channel 4; news features; Cable News Network. Development of a web page was the focus this year (www.mapoison.org). The page includes the annual report, staff at the center and links to other related sites. A section for public education materials is being added.

Presentations to various community groups and organizations in 1996 included:

Audience	Location
Parent Groups	Medway, Sudbury
Physicians/RN's	Carney Hospital
Physicians	Boston Medical Center
Physicians	Rush Medical School
Safe State Conference	Worcester
Elder Services/Senior Center	Cambridge/Somerville
Parents	Local Health Fairs
Students	(Various Elementary Schools)
Pharmacy Students	Mass College of Pharmacy

Representative interviews presented to local media outlets in 1996 included:

Date	Media	Topic
2/26/96	CNN	Poison Prevention
3/7/96	WBUR/WBRK	Drug Overdose
4/9/96	Associated Press	Antidepressants
6/13/96	WBZ	Pet Poisoning
7/8/96	Channel 4	Lawn Care Products
8/7/96	Channel 5-Chronicle	Herbal Remedies
8/17/96	Boston Globe	General Poisoning
12/9/96	Channel 4,7,56,25	CO Poisoning
12/9/96	WBRK Radio	General Poison Information

PROFESSIONAL EDUCATION & RESEARCH

Staff at the Poison Center continue to provide leadership in the education of health professionals in clinical toxicology here in Massachusetts as well as nationally.

Clinical Toxicology Review (CTR): Now its nineteenth year of publication, the monthly update of the Poison Center, Clinical Toxicology Review, has distributed over 20 volumes comprising 240 individual issues. Our mailing list for Clinical Toxicology Reviews continues to expand internationally; subscriptions are still free to member hospitals and health maintenance organizations within Massachusetts.

Postgraduate Education Outreach: Poison Center staff have been active in providing continuing education lectures and courses for physicians, nurses, pharmacists, emergency medical technicians, and health policy makers. Off-site training seminars, grand rounds, and other educational formats were provided at the following institutions in 1996:

Children's Hospital	Deaconess Hospital
Atlanticare	Metrowest-Framingham
Lynn-Union Hospital	Carney Hospital
Holy Family Hospital	Massachusetts College of Pharmacy
Massachusetts General Hospital	North Shore Children's Hospital
The Cambridge Hospital	Beth Israel Hospital
MA EMT Association	Norwood Hospital
Southwood Hospital	Baystate Medical Center

Poison-Center Sponsored Courses: The Poison Center has regularly sponsored programs dedicated to updating health professionals concerning specific topics in toxicology. Most recently the Poison Control System cosponsored a workshop at the Ambulatory Pediatrics Association annual meeting in Washington D.C. in May, 1997. The workshop was entitled "The Pharmacotherapy of Poisoning In Children."

Physician Training: The Poison Center continues to serve as a training site for health professionals. Both pediatric and adult emergency medicine residents from Boston Medical Center include a one month experience at the Poison Center among their rotations. Pediatric residents and emergency medicine fellows from Children's Hospital continue to join us on elective one-month rotations. Dr. Bob Rantilla from St. Elizabeth's Hospital also completed a one-month rotation. Additionally the Poison Center has developed a close collaboration with the toxicology fellowship training program at the University of Massachusetts Medical Center in Worcester. Dr. Robert Ferm is the director of the fellowship training program. Dr. Amnon Mordel spent two months in 1996 working on various service and research projects at the Poison Center. The Poison Center continues to welcome guests from other states and internationally who wish to train in clinical toxicology. Drs. Harry Zilberman, Michael Arsenault, and Harry Eisman, physicians from Montreal Children's Hospital, each spent one month working at the Poison Center.

Fellowship Training: The Poison Center, in collaboration with Children's Hospital, continues to provide a 2-year fellowship in medical toxicology. This is a highly competitive, sought-after position for physicians-in-training nationwide and qualifies the physician to become board-certified toxicologist. Dr. Carl Baum completed fellowship training in 1995-96 and is affiliated with the Department of Emergency Medicine, Children's Memorial Hospital, Chicago, Illinois. Drs. Robert Wright and Holly

PROFESSIONAL EDUCATION & RESEARCH

Perry completed their fellowship training in 1997 and are at Rhode Island Hospital, Providence, and Cincinnati Children's Hospital, Cincinnati, Ohio, respectively. Two new fellows, Drs. Michele Burns and Sophia Dyer, will begin training in July, 1997.

EMT Training: A training program for Massachusetts Emergency Medical Technicians has been developed by Tom Quail, RN, CSPI Specialist in Poison Information. EMT's from throughout Massachusetts will register for a half-day on-site training experience in the Poison Center supervised by senior staff. EMT's can receive up to 4 hours of continuing education units for completion of this course.

Research: The Poison Center continues to initiate new research endeavors into many different areas of clinical toxicology including epidemiology, diagnosis, management, and the prevention of poisonings. Recent published research abstracts include:

Baum C, Shannon M, Woolf A. Breath and blood ethanol following use of a cough-cold preparation. *J Toxicol Clin Toxicol* 1996;34:630.

Baum C, Shannon MW, Woolf AD. Breath alcohol and blood ethanol following use of a cough-cold preparation. *Pediatr Res* 1996;39:130A.

Greenes D, Wieler J, Woolf A. Which childhood poisonings should we prevent? Implications of poisoning hospitalization charges at a children's hospital. American Academy of Pediatrics spring sessions, Chicago Illinois, April 1996.

Shannon M, Rifai N, Bower M, Woolf A. Rapid analysis of blood level: preliminary data on a novel screening instrument. *J Toxicol Clin Toxicol* 1996;34:610.

Vaccaro A, Woodard-Jenkins J, Woolf A. Managed care and poison centers: defining the market. *J Toxicol Clin Toxicol* 1996;34:615.

Softley LJ, Lee K, Yanigasawa Y, Woolf A: Validity of visual-type carbon monoxide detectors. *J Toxicol Clin Toxicol* 1996;34:605.

Woolf A, Caraccio T, Burkhart K, Litovitz T. Childhood poisonings from the transdermal nicotine patch. *Pediatr Res* 1996;39:115A.

Woolf A, Shannon M. Prisoner self-poisonings: how well are they managed? *J Toxicol Clin Toxicol* 1996;34:630.

Woolf A, Wieler J, Greenes D. Patterns of poisoning hospitalization charges at a children's facility. Ambulatory Pediatric Association, Washington D.C., May 1996.

Wright R, Anderson A, Woolf A, Linakis J, Lewander W. Optimal metoclopramide dose to prevent emesis after administration of oral N-acetylcysteine for acetaminophen overdose. *J Toxicol Clin Toxicol* 1996;34:586.

PROFESSIONAL EDUCATION & RESEARCH

Wright R, Hu H, Maher T, Amarasiriwardena C, Chaiyakul P, Woolf A, Shannon M. Effect of iron deficiency on brain and kidney lead levels after intravenous lead dosing: a rodent model. *J Toxicol Clin Toxicol* 1996;34:576.

Wright RO, Magnani BJ, Shannon MW, Woolf AD. N-acetylcysteine reduces methemoglobinemia: an in vitro model. *Pediatr Res* 1996;39:164A.

MASSACHUSETTS POISON CONTROL SYSTEM

PUBLICATIONS 1996-1997

PUBLISHED ARTICLES AND REVIEWS

- (1) Anderson A, Shannon M. Poisonings in Critical Care for Infants and Children. Todres ID, J. Eds.. Little, Brown and Company 1996.
- (2) Cohen G, Fleming NF, Glatter KA, Haghiri DB, Halberstadt J, McHugh KB, Woolf A. Epidemiology of Substance Abuse in Source Book of Substance Abuse & Addiction eds. Friedman L, Wilkins, Baltimore, Md 1996.
- (3) Katz J, Prescott K, Woolf AD: Strychnine poisoning from the use of a Cambodian traditional remedy. Am J Emerg Med 1996;14:475-7.
- (4) Perry H, Shannon M. Current approach to pediatric gastrointestinal decontamination. Ped Annals 1996;25:19-26.
- (5) Shannon M. Poisonings in Critical Care for Infants and Children. Todres ID, Fugate. J. Eds., Little Brown and Company 1996.
- (6) Shannon MW. Petroleum Distillates in The Clinical Practice of Emergency Medicine. A. Harwood-Nuss, Ed. 2nd Edition, JB Lippincott 1996.
- (7) Shannon MW. Chloramphenicol, Disulfiram, Disc Batteries, Metronidazole, Isoniazid in Encyclopedia of Toxicology. P Wexler, Ed., Appleton & Lange, 1996.
- (8) Shannon M. Inhalants. In Source Book of Substance Abuse and Addiction in Friedman L, Fleming N, Roberts D, Hyman S., Eds. Williams & Wilkins 1996.
- (9) Shannon M, Graef J. Lead Intoxication in children with pervasive developmental delays. J Toxicol Clin Tox 1996;34:177-182.
- (10) Shannon MW. Methylxanthines in Intensive Care Medicine, Little, Brown & Co, Boston, 1996.
- (11) Woodard, JA: Cisapride. Clinical Toxicology Review; 1996 vol. 18 no. 5 pp.1-2.
- (12) Woolf AD: Isoniazid The Clinical Practice of Emergency Medicine Second Edition. eds. Harwood-Nuss A, Linden C, Luten R, et al:J.B. Lippincott Co, Phil, Pa 1996.
- (13) Woolf AD, Caraccio T, Litovitz T, Burkhardt K: Self poisoning among adults using multiple transdermal nicotine patches. J Toxicol Clin Toxicol 1996;34:691-8.
- (14) Woolf AD, Chrisanthus K: On-site availability of selected antidotes: results of a survey of Massachusetts hospitals. Ann J Emerg Med 1997;15:62-66.
- (15) Woolf A, Wieler J, Greenes D: Costs of poison-related hospitalizations at an urban teaching hospital for children. Arch Pediatr Adolesc Med 1997;151:719-723.

MASSACHUSETTS POISON CONTROL SYSTEM

PUBLICATIONS 1996-1997

PUBLISHED ARTICLES AND REVIEWS

- (16) Woolf AD, Liebelt E, Berkowitz ID. Chapter 40: Poisoning and the Critically Ill Child in Critical Care Medicine eds. Rodgers C, Fackler JC, W.B. Saunders Co., Phil, 1996.
- (17) Woolf AD, Lovejoy FH Jr. Digitalis, in Human Toxicology ed. Pr Jacques Descotes, Elsevier Press, Amsterdam, The Netherlands, 1996.
- (18) Woolf AD: Acetaminophen Poisoning in Critical Care Pearls II. Editors: Heffner JE & SA Sahn, Hanley & Belfus Inc., Philadelphia, 1997.
- (19) Woolf AD: Risperidone. Clinical Toxicology Review 1996;19:1-2.
- (20) Woolf AD, Lovejoy FH. Principles of Toxin Assessment and Screening in Pediatric Critical Care, 2nd Ed eds. Fuhrman B.P. and Zimmerman J.J., The C.V. Mosby Co., St. Louis, 1996.
- (21) Woolf AD. Absinthe. Clinical Toxicology Review 1996;18(3): 1,2.
- (22) Woolf AD, Berkowitz ID, Liebelt E: Chapter 39: Poisoning and the Critically Ill Child in Textbook of Pediatric Intensive Care, 3rd Edition. eds. Rodgers D, Nichols DG, Ackerman AD, Dean JM, Greeley WJ, Fackler JC, Wetzel RC. Williams & Wilkins, Philadelphia, PA, 1996.
- (23) Woolf AD. Disaster planning - our finest hour? J Toxicol Clin Toxicol 1996;34:59,60.
- (24) Woolf AD, Caraccio T, Litovitz T, Burkhardt K: Childhood exposures to transdermal nicotine patches. Pediatrics 1997;99-e4: 1-5.
- (25) Wright R, Perry Shannon MW, Woolf AD: Hemolysis after acetaminophen overdose in a patient with glucose6phosphate dehydrogenase deficiency. J Toxicol Clin Toxicol 1996;34:731-33.
- (26) Wright R, Magnani BJ, Shannon MW, Woolf AD: N-acetyl cysteine reduces methemoglobin In Vitro. Ann Emerg Med 1996;28:499-503.

ARTICLES IN PRESS

- (1) Babl F, Karasch S, Woolf AD: Respiratory symptoms associated with ingestion of sodium hypochlorite. *Am J Emerg Med* (in press).
- (2) Ciarallo L, Sauer A, Shannon M: Efficacy of Intravenous magnesium in moderate to severe childhood asthma. *J Pediatr* (in press).
- (3) Perry H, Shannon W: The comatose overdose: management of opioid and benzodiazepine overdose. *Curr Opinion Ped* (in press).
- (4) Shannon MW: Drug-Drug interactions and the cytochrome P450 system: an update. *Ped Emerg Care* (in press).
- (5) Shannon M: Etiology of childhood lead poisoning in Lead Poisoning in Childhood. Pueschel S, Linakis J, Anderson A, Eds. Brookes Publishing Co. (in press).
- (6) Woolf AD, Lovejoy FH: Poison Prevention in Clinical Management of Poisoning & Drug Overdose 3rd Ed eds. Haddad LM, Winchester JF, Shannon MW. W.B. Saunders Co (in press).
- (7) Woolf AD: Poisoning - General Considerations in Ambulatory Pediatrics eds. Stockman JA, Lohr JA, W.B. Saunders Co., Phil. (in press).
- (8) Woolf AD, Lovejoy FH: Poison Prevention in Clinical Management of Poisoning & Drug Overdose 3rd Edition. eds. Haddad LM, Winchester JF, Shannon MW. W.B. Saunders Co (in press).
- (9) Woolf AD, Wright R: Phencyclidine in Clinical Management of Poisoning & Drug Overdose, 3rd Edition, eds. Haddad LM, Winchester JF, Shannon MW. W.B. Saunders Co (in press).
- (10) Woolf AD: Foodborne Diseases in Ambulatory Pediatric Care, 2nd Edition. ed. Robert Dershewitz, Lippincott-Raven Publishers (in press).
- (11) Woolf AD: Smoking and nicotine addiction: a pediatric epidemic with sequelae in adulthood. *Curr Opin Pediatr* (in press).
- (12) Woolf AD, Greenes D: Emergency Pediatrics in Ambulatory Pediatrics V eds. Weitzman M, Haggerty R. W.B. Saunders Press, (in press).
- (13) Woolf AD, Shaw J: Childhood injuries from artificial nail primer cosmetic products. *Arch Pediatr Adol Med* (in press).
- (14) Wright RO, Lewander WJ. Approach to the poisoned patient in The Practical Guide to the Care of the Pediatric Patient. Editor: AJ Alario. Mosby Yearbook Inc. (in press).
- (15) Wright RO, Woolf AD. Phencyclidine Poisoning in: Clinical Management of Poisoning and Drug Overdose Editors: Winchester JF, Haddad LM, and Shannon MW. WB Saunders Company, 3rd Edition, (in press).
- (16) Wright RO, Woolf AD, Shannon MW, Magnani BJ. Use of N-acetylcysteine to reduce methemoglobin in an vitro model of glucose-6-phosphate dehydrogenase deficiency. *Acad Emerg Med* (in press).

1997
Annual
Statistical
Report



Massachusetts
Poison Control
System

GOVERNMENT DOCUMENTS
COLLECTION

JAN 19 2001

University of Massachusetts
Designated as the Repository of Information Center
for Massachusetts by the Massachusetts Legislature, the
Massachusetts Department of Public Health, and the
American Association of Poison Control Centers.



Massachusetts Poison Control Center
300 Longwood Avenue
Boston, Ma 02115

TABLE OF CONTENTS

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Executive Summary	3
Facts At A Glance	4
Introduction	5
Geographic Distribution	6
Age & Sex	7
Call Volume Characteristics	8
Site Of Caller	9
Site Of Exposure	10
Callers-Cities & Towns	11-16
Callers-Health Professionals	17-20
Agents Involved-Drugs	21-22
Deaths	23
Public Education	24
Professional Education & Research	25-26
Published Articles	27-29
Articles In Press	30
Appendix-Staff	31-32
Advisory Board Members	33-34
Member Affiliates	35

EXECUTIVE SUMMARY

The Massachusetts Poison Control System (MPCS), founded in 1955 and regionalized for Massachusetts in 1978, continues to enjoy the support of both the state and the member institutions as a public-private partnership. Under the leadership of Commissioner Howard Koh and the Department of Public Health, the state provided 70% (\$500,000) of the Poison Center's \$720,000 operating budget for 1997. Children's Hospital, Boston, provided all the indirect expenses.

The original six consortium institutions which organized the System: Boston Medical Center, New England Medical Center, Children's Hospital, the Massachusetts College of Pharmacy and Allied Health Sciences, Massachusetts General Hospital, and the University of Massachusetts Medical Center continue their support. Seventy-seven member institutions, represented by the Massachusetts Hospital Association and the Massachusetts Association of Health Maintenance Organizations, provide the additional revenues needed to run the Poison Center.

It is estimated that each poisoning consultation or information call cost \$11.77/call in 1997. If no poison center existed, it is estimated that 63% of suspected ingestions would self refer to medical services as opposed to 13% self-referral and 10% poison center referral when the poison center exists. This translates into 14,496 excess medical visits (assume 80% emergency department at \$150/visit and 20% physician's office at \$60/visit) or \$1,913,513 in extra health care expenses. When subtracted from the poison center's budget, there was a savings of almost \$1,815,398 in unnecessary health expenditures in 1997 attributable to the existence of the Massachusetts Poison Center.

During 1997, the Poison Center received 36,242 poisoning-related telephone calls, with children under 6 years of age accounting for over 55% of the total. Total volume, including follow-up calls as well as informational inquiries, reached over 74,306 calls. Most poisonings occurred in the home; however more than 21.8% of the calls to the Poison Center came from health care facilities such as hospitals and health centers. More than 3,590 poisonings (9.2%) were judged potentially severe or life-threatening; 24 poisoning-related deaths were reported.

Besides this tremendous volume of service, the MPCS continues to develop initiatives to prevent poisonings. Telephone stickers and brochures were distributed through civic and health organizations. A TDD telephone system is installed to serve deaf and hearing-impaired clients.

The System also seeks to improve poisoning management through an extensive program of professional education and research. More than 100 health professionals annually receive training at the Poison Center. The center has also developed a model fellowship program for training future toxicologists. Lectures and workshops in clinical toxicology were presented at over 20 health care institutions in the state in 1997. The MPCS is among the top U.S. poison centers in research productivity, with 46 scientific reviews and original papers published or in press in 1997-98 alone.

Massachusetts can be proud of its certified Poison Control System: a national leader in service, education, and research.

POISON CONTROL CENTER FACTS AT A GLANCE

1. The Poison Control Center received 36,242 poisoning-related calls in 1997.
2. Children 2 years and younger accounted for 14,922 poisoning calls or 41% of the total.
3. The Poison Control Center received more than 7,909 calls (21.8% of the total) directly from health professionals.
4. The Poison Center also received 24,921 information calls; and specialists made 13,143 follow-up calls. Total telephone volume in 1997 was 74,306 incoming and outgoing calls, more than 200 calls per day.
5. Operations at the Poison Control Center cost \$720,000 in Fy97 (July 1997 to June 1998) for direct expenses only. Of this budget, more than 90% was spent on personnel. The Poison Control Center expenses represent a cost of \$11.77 per poisoning or information call. The Poison Center accounted for \$1,815,398 savings in unnecessary health services utilization averted in Massachusetts in 1997.
6. There were 24 deaths related to poisoning reported to the Poison Control Center in 1997 (<0.05% total poisoning call volume).
7. As in previous years, the most common drug involved in Massachusetts poisonings was acetaminophen; the most common non-drug agents were plant poisonings.

INTRODUCTION

The Massachusetts Poison Control System, founded in 1955 and regionalized in 1978, is one of the oldest and most active poison centers in the United States. The original six consortium institutions which organized this system: Boston Medical Center, Tufts University Medical School, the Children's Hospital, the Massachusetts College of Pharmacy and Allied Health Sciences, New England Medical Center, and the University of Massachusetts Medical School all continue their active support.

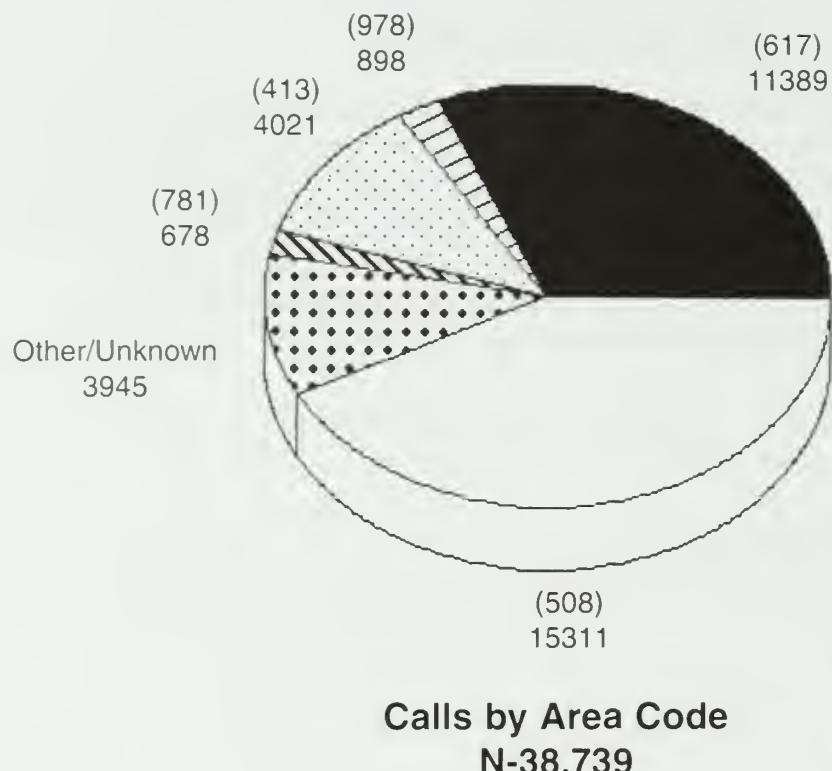
This, the nineteenth year of support by Member Institutions, saw 80 hospitals and health maintenance organizations contributing to the operating budget. The Member Institutions now contribute approximately 20% of the System's operating budget. The Department of Public Health contributes 70% of the budget.

MISSION STATEMENT

The primary mission of the system continues to be that of providing the highest calibre of assistance and expertise in the medical diagnosis and management of poisoning cases involving the citizens of the Commonwealth of Massachusetts. Additionally the MPSC seeks to improve the quality of medical care given to potentially poisoned patients by maintaining an unparalleled standard of excellence in both clinical research activities and professional education endeavors. Finally, it is integral to the mission of the MPSC that it serve the Commonwealth as a lead agency in the development of innovative strategies to prevent unnecessary injuries due to intentional and unintentional poisonings and toxic exposures.

GEOGRAPHIC DISTRIBUTION

More than 61,163 poisoning-related exposure or inquiry calls were reported to the Massachusetts Poison Center in 1997. Within this total, there were 28,849 (79.6%) exposure calls from the public and 7,393 (20.4%) calls concerning poisoned patients being treated by health professionals (Total:36,242 exposure calls). There were an additional 24,921 inquiry calls about poisons, where no exposure had taken place. Of the exposure calls only, 42.2% were from 508 area code, 31.4% from the 617 area code, 11.1% from the 413 area code, 2.5% from the 978 area code, 1.9% from the 781 area code, and 10.9% from unknown telephone numbers or from out of state.



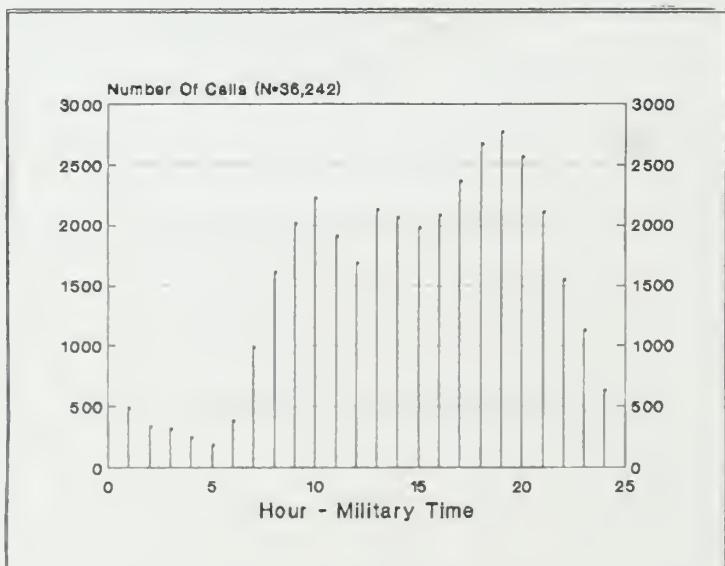
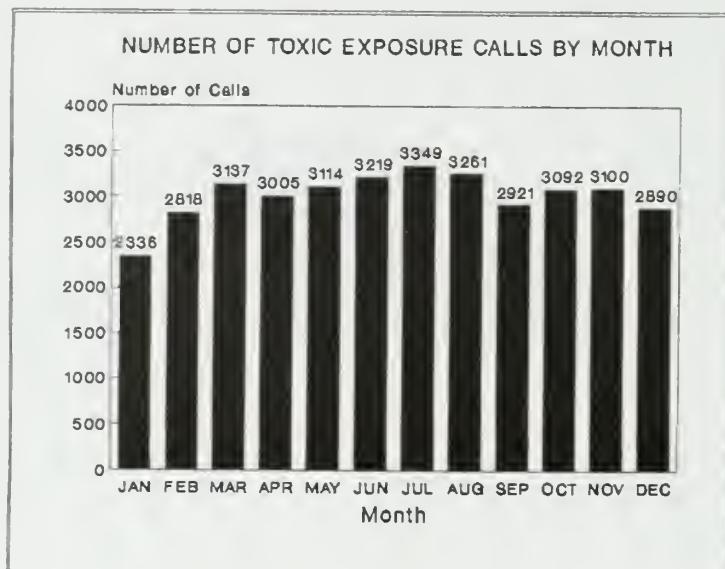
AGE & SEX

The peak ages for victims of poisoning are children 0-3 years old and adolescents 13-19 years old. More than 55% of the Poison Control Center's exposure calls involve children under the age of 6 years. While there was little gender difference among early childhood exposures, more males than females of school age were involved in poisonings. Also more female than male adolescents were involved in poisonings at a ratio of 1.5:1.

<u>AGE (YEARS)</u>	<u>MALES</u>	<u>FEMALES</u>	<u>TOTAL</u>	<u>%</u>	<u>CUM PERCENT</u>
<1	1139	1064	2203	6.1	6.1
1	3281	2873	6154	17.0	23.1
2	3464	3101	6565	18.1	41.2
3	1715	1426	3141	8.7	49.9
4	773	568	1341	3.7	53.6
5	440	332	772	2.1	55.7
6-12	1491	1031	2522	7.0	62.7
13-19	1090	1659	2749	7.6	20.3
20-29	893	1076	1969	5.4	75.7
30-39	844	1096	1940	5.4	81.1
40-49	528	766	1294	3.6	84.7
50-59	222	421	643	1.8	86.5
60-69	132	230	362	0.9	87.4
>70	177	456	633	1.7	89.1
UNK	-	3,954	10.9	-	
TOTALS	16,189	16,099	36,242	100%	100%

CALL VOLUME CHARACTERISTICS

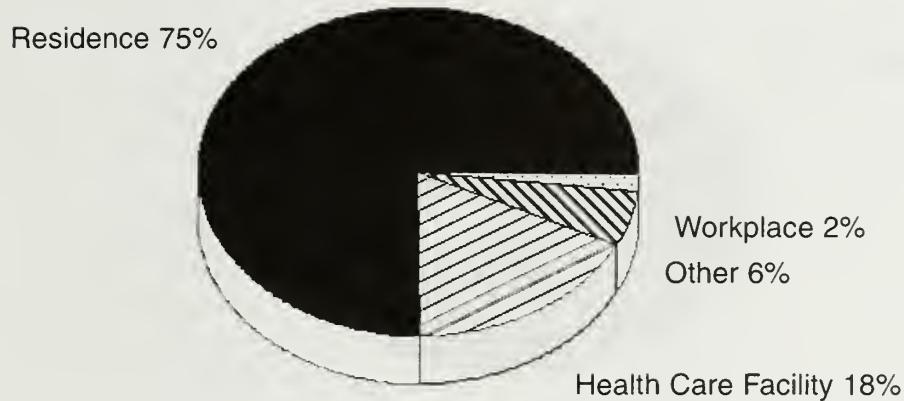
The largest volume of exposure calls was received during July; the least number during January. The exposure calls show a varied distribution for time of day with peak periods of calling frequency during 9:00-10:00 A.M. and 4:00-8:00 P.M. By contrast, less than 5% of exposure calls were received between midnight and 7:00 A.M.



SITE OF CALLER

Over 93% of people seeking the Poison Center's advice for a potentially toxic exposure were calling from either a private residence or a health care facility.

CALLER SITE	NUMBER OF CALLS	% OF TOTAL
OWN OR OTHER RESIDENCE	27,231	75.1%
HEALTH CARE FACILITY	6,351	17.5%
WORKPLACE	623	1.7%
SCHOOL	174	0.5%
PUBLIC AREA	107	0.4%
OTHER/UNKNOWN	1,756	4.8%
TOTALS	36,242	100%

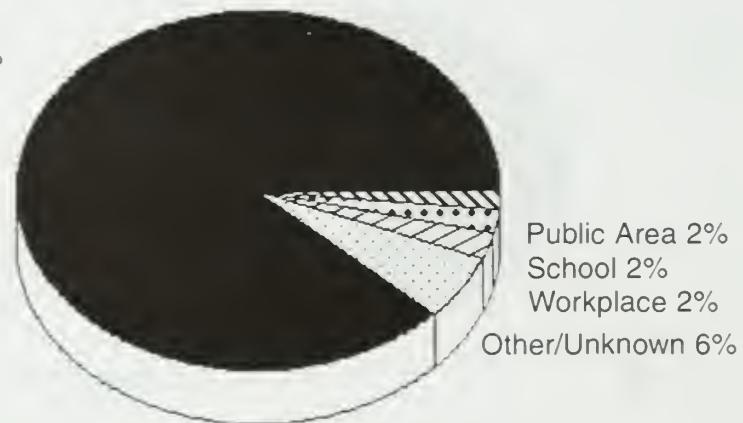


SITE OF EXPOSURE

The most frequent site of exposure to a potential toxin continues to be the victim's own residence. However the Poison Center also received an important number of calls concerning occupational exposures or exposures at schools, other public areas such as restaurants, or health care facilities.

SITE OF EXPOSURE	NUMBER	% OF TOTAL
OWN HOME	30,648	84.6%
OTHER RESIDENCE	1,221	3.4%
WORKPLACE	834	2.3%
SCHOOL	814	2.2%
OTHER PUBLIC AREA	488	1.3%
HEALTH CARE FACILITY	158	0.4%
OTHER/UNKNOWN	2,079	5.8%
TOTALS	36,242	100%

Residence 88%



CALLERS - CITIES & TOWNS

The Poison Center received 36,242 poisoning-related calls in 1997. These poisoning exposure calls included 32,297 calls from health professionals and the general public from identified towns in Massachusetts. There were approximately 3,945 calls for whom a telephone number was not given or who were calling from out of state.

The penetration rate of the Poison Center overall (information +exposure calls) was 11.0 calls per 1000 population in 1997. Penetration rate for poisoning exposure calls alone was 6.0 calls per 1000 population. The frequency of calls from major cities and towns in Massachusetts for 1997 follows:

EASTERN MASSACHUSETTS

There were over 10,785 calls from Boston and 55 nearby communities identified by town:

NUMBER	TOWN	CALLS	PENETRANCE*
1	BOSTON	2401	4.1
2	CAMBRIDGE	585	5.9
3	WEYMOUTH	420	7.8
4	BROOKLINE	404	6.4
5	QUINCY	348	4.1
6	WALTHAM	297	4.9
7	NEWTON	277	3.3
8	MELROSE	266	10.1
9	LYNN	266	3.2
10	MALDEN	253	4.7
11	NORWOOD	248	9.0
12	SOMERVILLE	244	3.1
13	MEDFORD	228	3.9
14	EVERETT	214	5.8
15	ARLINGTON	210	5.0
16	WINCHESTER	200	10.8
17	ROCKLAND	189	11.3
18	WELLESLEY	180	6.6
19	BURLINGTON	178	7.6
20	REVERE	174	4.9
21	NEEDHAM	157	5.7
22	MILTON	154	6.2
23	BRAINTREE	154	4.9
24	DEDHAM	150	6.6
25	MARSHFIELD	147	6.6
26	WOBURN	134	3.8
27	LEXINGTON	122	4.1
28	BELMONT	121	5.0
29	CHELSEA	120	3.8
31	WAKEFIELD	114	4.8
32	RANDOLPH	110	3.6
33	STOUGHTON	110	4.0
34	BEDFORD	105	8.9
35	READING	98	4.5
36	WATERTOWN	97	2.9
37	HINGHAM	95	4.7
38	KINGSTON	88	8.3
39	NAHANT	85	24.5

CALLERS - CITIES & TOWNS

NUMBER	TOWN	CALLS	PENETRANCE*
40	SAUGUS	84	3.5
41	WINTHROP	78	4.5
42	WHITMAN	75	6.1
43	SCITUATE	74	4.6
44	MARBLEHEAD	74	3.7
45	STONEHAM	71	3.4
46	CANTON	71	3.8
47	SHARON	70	4.5
48	HANOVER	58	4.8
49	HULL	43	4.0
50	DUXBURY	42	3.0
51	LINCOLN	39	5.8
52	HOLBROOK	37	3.4
53	COHASSET	33	4.8
54	LYNNFIELD	32	2.9
55	NORWELL	27	3.0
TOTALS		10,771	

WESTERN MASSACHUSETTS

There were 3,764 calls from 60 Western Massachusetts cities and towns:

NUMBER	TOWN	CALLS	PENETRANCE*
1	SPRINGFIELD	711	4.6
2	HOLYOKE	316	7.5
3	PITTSFIELD	310	6.7
4	WESTFIELD	210	5.2
5	AMHERST	172	4.8
6	NORTH ADAMS/ADAMS	170	6.8
7	CHICOPEE	168	3.0
8	NORTHAMPTON	163	5.2
9	GREENFIELD	143	7.6
10	LONGMEADOW/E. LONGMEADOW	136	4.7
11	LUDLOW/INDIAN ORCHARD	107	6.4
12	PALMER	98	8.1
13	AGAWAM	94	3.3
14	EASTHAMPTON	77	4.8
15	GREAT BARRINGTON	65	8.5
16	WARE	53	5.3
17	BELCHERTON	45	3.6
18	WILLIAMSTOWN	44	5.2
19	SOUTH DEERFIELD	42	7.9
20	WILBRAHAM	41	3.3
21	SHELBURNE FALLS	41	18.7
22	BRIMFIELD	39	13.3
23	STOCKBRIDGE/W. STOCKBRIDGE	37	17.7
24	DALTON	33	5.3
25	SOUTHWICK	30	3.6
26	LEE	28	5.0
27	TURNER FALLS	24	-
28	SHEFFIELD	24	7.5
29	LENOX	23	5.3

CALLERS - CITIES & TOWNS

NUMBER	TOWN	CALLS	PENETRANCE*
30	WILLIAMSBURG	23	8.8
31	WARREN	21	4.3
32	MONSON	20	2.4
33	HATFIELD	19	6.5
34	GRANBY	18	3.0
35	HAMPDEN	17	3.9
36	HOUSATONIC	14	-
37	CHARLEMONT	13	10.7
38	HINSDALE	12	5.8
39	COLRAIN	12	7.1
40	RUSSELL	11	6.3
41	SANDISFIELD	11	18.1
42	NORTHFIELD	11	3.8
43	BECKET	10	6.0
44	CUMMINGTON	10	12.0
45	BERNARDSTON	10	5.0
46	HUNTINGTON	9	4.0
47	BLANDFORD	9	6.9
48	OTIS	9	8.2
49	GRANVILLE	8	5.2
50	RICHMOND	7	4.4
51	CONWAY	7	3.9
52	GILBERTVILLE	6	-
53	CHESTER	6	4.0
54	CHESTERFIELD	5	5.0
55	MILLER'S FALLS	5	-
56	HANCOCK	4	6.0
57	WORTHINGTON	4	3.3
58	HEATH	3	3.9
59	MONTAGUE	3	0.4
60	ASHFIELD	3	1.7
TOTALS		3,764	

*Penetration Rate represents the number of exposure calls per 1,000 population (town population figures from 1995 Department of Health census data)

CENTRAL-EASTERN MASSACHUSETTS

There were more than 15,084 calls 143 from communities in central and other eastern parts of Massachusetts as well as Cape Cod and the islands.

NUMBER	TOWN	CALLS	PENETRANCE*
1	WORCESTER/AUBURN	847	4.9
2	BROCKTON	780	8.6
3	LAWRENCE	623	9.0
4	NEW BEDFORD	545	5.5
5	HAVERHILL	502	8.9
6	LOWELL	474	4.4
7	FALL RIVER	469	5.1
8	FRAMINGHAM	367	5.7

CALLERS - CITIES & TOWNS

NUMBER	TOWN	CALLS	PENETRANCE*
9	ATTLEBORO (+NORTH/SOUTH)	350	8.6
10	TAUNTON	331	6.3
11	SALEM	301	7.3
12	BEVERLY	254	6.8
13	HYANNIS	246	-
14	NEWBURYPORT	221	13.3
15	GARDNER	215	0.4
16	PLYMOUTH	209	4.2
17	BRIDGEWATER (+EAST)	208	8.0
18	PEABODY	207	4.4
19	NATICK	192	6.4
20	MILFORD	178	7.4
21	BILLERICA	171	4.8
22	DANVERS	167	7.1
23	FITCHBERG	161	4.0
24	FALMOUTH	159	5.3
25	WILMINGTON	159	8.8
26	MARLBORO	154	4.7
27	ANDOVER	151	5.5
28	FRANKLIN	145	5.7
29	SOUTHBRIDGE	141	7.8
30	GLoucester	140	4.9
31	LEOMINSTER	137	3.2
32	WALPOLE	133	6.4
33	WESTFORD	130	7.3
34	ACTON	124	7.0
35	TEWKSBURY	123	4.2
36	MANSFIELD	123	6.4
37	CONCORD	121	6.7
38	DENNIS	116	8.2
39	FOXBOROUGH	106	6.9
40	OSTERVILLE	105	-
41	ATHOL	103	9.0
42	MIDDLEBOROUGH	101	5.3
43	CHELMSFORD (+NORTH)	99	3.0
44	SHREWSBURY	98	3.6
45	SAGAMORE	95	-
46	EASTON	93	4.4
47	MANOMET	91	-
48	WESTBOROUGH	91	5.8
49	WAREHAM	90	4.5
50	CLINTON	88	6.2
51	AMESBURY	85	5.3
52	MERRIMAC	84	15.4
53	WHITINSVILLE	82	-
54	MEDFIELD	77	7.1
55	WEBSTER	76	4.5
56	MEDWAY	75	6.8
57	VINEYARD HAVEN	74	-
58	SUDBURY	72	5.4
59	HARWICH	71	6.7
60	GRAFTON	71	5.1
61	NORTON	71	4.1

CALLERS - CITIES & TOWNS

NUMBER	TOWN	CALLS	PENETRANCE*
62	AYER	70	9.1
63	CATUMET	68	-
64	BUZZARD'S BAY	68	-
65	NANTUCKET	66	10.2
66	BLACKSTONE	66	6.8
67	HOLDEN	65	4.3
68	DRACUT	65	2.2
69	HOPKINTON	65	6.0
70	WRENHAM	65	6.5
71	UXBRIDGE	64	5.3
72	HOLLISTON	64	4.9
73	READING (+NORTH)	63	2.9
74	GROTON	62	7.4
75	HUDSON	62	3.5
76	CHATHAM	61	9.3
77	PEPPERELL	61	5.4
78	HAMILTON	60	7.7
79	NORTHBOROUGH	59	4.7
80	OXFORD	58	4.4
81	MILBURY	58	4.6
82	CARVER	56	4.8
83	IPSWICH	55	4.8
84	TOPSFIELD	52	8.9
85	ORLEANS	52	8.4
86	MAYNARD	51	4.9
87	TYNGSBOROUGH	50	5.3
88	CHARLTON	49	4.5
89	GEOGETOWN	49	7.0
90	LITTLETON	49	6.4
91	BARNSTABLE	48	1.1
92	ASHLAND	48	3.4
93	N. BROOKFIELD	47	9.9
94	LEOMINSTER	47	1.1
95	WESTPORT	42	3.0
96	SPENCER	42	3.5
97	MASHPEE	42	4.0
98	MILLIS	40	5.5
99	WINCHENDON	40	4.2
100	STURBRIDGE	39	5.2
101	LUNENBERG	38	3.9
102	WAYLAND	38	3.2
103	LEICASTER	36	4.1
104	RUTLAND	35	6.9
105	BOYLSTON (+WEST)	33	8.5
106	ROCHESTER	33	7.2
107	ORANGE	31	4.0
108	DOVER	31	5.9
109	BELLINGHAM	30	1.09
110	ROCKPORT	29	3.7
111	TOWNSEND	29	3.3
112	MANCHESTER	29	5.7
113	PROVINCETOWN	28	8.8
114	BOLTON	27	7.6

CALLERS - CITIES & TOWNS

NUMBER	TOWN	CALLS	PENETRANCE*
115	WELLFLEET	27	10.4
116	BREWSTER	25	2.5
117	MATTAPOISETT	25	4.1
118	ESSEX	24	8.8
119	MARION	23	4.3
120	HARVARD	23	1.8
121	STERLING	22	3.2
122	BARRE	21	4.5
123	EDGARTOWN	21	6.2
124	TEMPLETON	21	3.0
125	SEEKONIC	20	1.5
126	REHOBOTH	17	1.8
127	HUBBARDSTON	16	4.3
128	ROWLEY	15	3.0
129	SHIRLEY	15	2.2
130	OAKHAM	15	8.7
131	WESTMINSTER	15	2.2
132	ASHBURNHAM	15	2.5
133	PRINCETON	14	4.3
134	DIGHTON	13	2.3
135	BERLIN	13	5.7
136	CHILMARK	10	16.7
137	ASSONET	10	-
138	ASHBY	9	3.1
139	W. NEWBURY	9	2.5
140	SWANSEA	7	0.5
141	SIASCONSET	3	-
142	NAUSHON	2	-
143	PETERSHAM	1	1.0
TOTALS		15,084	

CALLERS - HEALTH PROFESSIONALS

The Poison Control Center received 7,909 calls (21.8% of the total) from over 120 hospitals and many other health-related institutions within Massachusetts in 1997. Besides hospitals, other large clients of the Poison Control System included The Fallon Clinic, Harvard Pilgrim Health Plan, Harvard University Health Services, and the University of Massachusetts at Amherst. Physicians' offices, health centers, walk-in clinics, mental health facilities, nursing homes, correctional institutions, and homes for the retarded were other important users of poison center services.

NUMBER	RANK	CALLS	HOSPITAL
1	1	256	BOSTON MEDICAL CENTER
2	2	228	CHILDREN'S HOSPITAL
3	3	173	BROCKTON HOSPITAL
4	4	170	HALE HOSPITAL
5	5	149	CAMBRIDGE HOSPITAL
6	6	146	SOUTH SHORE HOSPITAL
7	7	136	ST. LUKE'S HOSPITAL NEW BEDFORD
8	8	122	BAY STATE MEDICAL CENTER
9	8	122	GOOD SAMARITAN HOSPITAL
10	9	118	HEYWOOD HOSPITAL
11	10	104	WINCHESTER HOSPITAL
12	11	96	MASSACHUSETTS GENERAL HOSPITAL
13	12	93	ST. ELIZABETH'S HOSPITAL
14	13	89	CARNEY HOSPITAL
15	14	87	HOLY FAMILY HOSPITAL
16	14	87	NOBLE HOSPITAL
17	15	82	METROWEST FRAMINGHAM HOSPITAL
18	15	82	WHIDDEN MEMORIAL HOSPITAL
19	16	79	MELROSE-WAKEFIELD HOSPITAL
20	16	79	NORWOOD HOSPITAL
21	17	78	NORTH SHORE CHILDREN'S HOSPITAL
22	18	77	QUINCY HOSPITAL
23	19	75	CAPE COD HOSPITAL
24	20	72	HARRINGTON HOSPITAL
25	21	71	LAWRENCE GENERAL HOSPITAL
26	22	67	BEVERLY HOSPITAL
27	23	69	MOUNT AUBURN HOSPITAL
28	24	65	ANNA JAQUES HOSPITAL
29	24	65	CHARLTON MEMORIAL HOSPITAL
30	25	63	BERKSHIRE MEDICAL CENTER
31	26	58	DEACONESS-WALTHAM HOSPITAL
32	27	57	HOLYOKE HOSPITAL
33	27	57	LOWELL GENERAL HOSPITAL
34	27	57	MORTON HOSPITAL
35	28	56	MALDEN HOSPITAL
36	29	55	JORDAN HOSPITAL
37	30	54	BRIGHAM & WOMEN'S HOSPITAL
38	31	51	FAULKNER HOSPITAL
39	31	51	MERCY HOSPITAL
40	32	50	FALMOUTH HOSPITAL
41	33	49	SALEM HOSPITAL
42	34	47	LAWRENCE MEMORIAL HOSPITAL
43	35	46	LAHEY BURLINGTON CENTER
44	36	45	BOSTON REGIONAL MEDICAL CENTER
45	37	44	ATHOL HOSPITAL
46	38	42	BETH ISRAEL HOSPITAL

CALLERS - HEALTH PROFESSIONALS

47	39	41	FRANKLIN MEDICAL CENTER
48	39	41	SOUTHWOOD HOSPITAL
49	40	38	MILTON HOSPITAL
50	41	37	SAINT'S MEMORIAL MED CTR / ST. JOHN
51	41	37	NEW ENGLAND MEDICAL CENTER
52	42	35	HUBBARD HOSPITAL
53	43	32	SOMERVILLE HOSPITAL
54	43	32	ST. VINCENT'S HOSPITAL
55	43	32	WING MEMORIAL HOSPITAL
56	44	27	LAHEY SYMMES HOSPITAL
57	45	26	ADDISON GILBERT HOSPITAL
58	45	26	ST. ANNE'S HOSPITAL
59	46	25	NEWTON-WELLESLEY HOSPITAL
60	46	25	WORCESTER MEMORIAL HOSPITAL
61	47	24	STURDY MEMORIAL HOSPITAL
62	47	24	VA HOSPITAL JAMAICA PLAIN
63	48	22	NORTH ADAMS REGIONAL HOSPITAL
64	49	21	LYNN UNION HOSPITAL
65	50	19	DEACONESS NASHOBIA HOSPITAL
66	51	18	MILFORD HOSPITAL
67	52	17	HUNT HOSPITAL
68	52	17	NANTUCKETT COTTAGE HOSPITAL
69	53	16	COOLEY-DICKENSON HOSPITAL
70	53	16	FAIRVIEW HOSPITAL
71	53	16	OTHER MA HOSPITALS
72	54	15	DEACONESS-GLOVER HOSPITAL
73	55	13	MARTHA'S VINEYARD HOSPITAL
74	56	12	HILLCREST HOSPITAL
75	56	12	CLINTON HOSPITAL
76	57	11	EMERSON HOSPITAL
77	57	11	UNIVERSITY HOSPITAL
78	58	10	U MASS-WORCESTER
79	59	9	CABLE HOSPITAL
80	59	9	HEALTH ALLIANCE-LEOMINSTER
81	60	8	LAHEY-PEABODY HOSPITAL
82	60	8	MARLBOROUGH HOSPITAL
83	61	7	FRANCISCAN CHILDREN'S HOSPITAL
84	61	7	MARY LANE HOSPITAL
85	61	7	VA HOSPITAL-NORTHAMPTON
86	62	6	VA HOSPITAL-WEST ROXBURY
87	63	5	TOBEY HOSPITAL
88	63	5	VA HOSPITAL-NEW BEDFORD
89	64	4	SAINT'S MEM MED CTR/ST. JOSEPH'S
90	64	4	ATLANTICARE HOSPITAL
91	64	4	HEALTH ALLIANCE-BURBANK HOSPITAL
92	64	4	WINTHROP HOSPITAL
93	65	3	HANSCOMB AFB
94	65	3	MILFORD-WHITINSVILLE HOSPITAL
95	65	3	NEW ENGLAND DEACONESS HOSPITAL
96	65	3	WINCHENDON HOSPITAL
97	66	2	MA EYE & EAR INSTITUTE
98	66	2	NEW ENGLAND BAPTIST HOSPITAL
99	66	2	SPRINGFIELD HOSPITAL
100	67	1	PROVIDENCE HOSPITAL
101	67	1	SHRINER'S BURN UNIT
102	67	1	WINCHESTER HOSP FAM MC-WILMINGTON

SUBTOTAL

4,907

CALLERS - HEALTH PROFESSIONALS

The Poison Center also received more than 1300 calls from medical clinics and health maintenance organizations in Massachusetts during 1997 including:

CLINIC	# OF CALLS	% OF TOTAL
PHYSICIAN'S OFFICES	876	66.8%
HEALTH CENTERS	150	11.4%
HARVARD PILGRIM HEALTH PLAN	139	10.6%
MGH CHELSEA SATELLITE	65	5.0%
FALLON HEALTH SYSTEM	36	2.7%
HARVARD U. HEALTH SERVICES	15	1.1%
MIT INFIRMARY	8	0.6%
OTHER IN-STATE FACILITIES	7	0.5%
MEDICAL WEST HEALTH CENTER	6	0.4%
U MASS AMHERST HEALTH SERVICE	6	0.4%
KAISER CLINIC	2	0.3%
N.E. SINAI HOSPITAL	1	<0.2%
TUFT'S U. HEALTH CENTER	1	<0.2%
 SUBTOTAL	 1,312	 100%

The Poison Center also received a number of calls from other health professionals in Massachusetts:

FACILITY	# OF CALLS	% OF TOTAL
SCHOOLS	544	35.1%
NURSING HOMES	327	21.1%
EMT'S & AMBULANCES	283	18.3%
CENTERS FOR THE AUTISTIC	148	9.5%
MENTAL HEALTH FACILITIES	136	8.8%
CAR PHONES	27	1.7%
PHARMACIES	24	1.5%
SHELTERS	24	1.5%
OTHER HOTLINES	10	0.6%
OTHER OUT OF STATE FACILITIES	6	0.4%
LEMUEL SHATTUCK HOSPITAL	4	0.3%
ARBOR HOSPITAL	3	0.3%
YOUVILLE HOSPITAL	3	0.1%
MACLEAN HOSPITAL	2	0.1%
OTHER POISON CENTERS	2	0.1%
BALDPATE HOSPITAL	1	0.1
CUSHING HOSPITAL	1	0.1
HAHNEMANN HOSPITAL BRIGHTON	1	0.1
HRI HOSPITAL	1	0.1
MCCM HAHNEMANN WORCESTER	1	0.1
N.E. SINAI HOSPITAL	1	0.1
TEWKSBURY STATE HOSPITAL	1	0.1
 SUBTOTAL	 1,550	 100%

CALLERS - HEALTH PROFESSIONALS

The Massachusetts Poison Center also received 144 calls from out-of-state health professionals in 1997 including:

FACILITY	# OF CALLS	% OF TOTAL
SOUTHERN REGIONAL MEDICAL CENTER (NH)	92	63.9%
MAYO HOSPITAL (MAINE)	1	0.5%
CONCORD HOSPITAL (NH)	7	4.9%
CATHOLIC MEDICAL CENTER (NH)	2	1.4%
ELIOTT HOSPITAL (NH)	2	1.4%
EXETER HOSPITAL (NH)	1	0.5%
ST. JOSEPH'S HOSPITAL (NH)	1	0.5%
OTHER	39	27.1%
SUBTOTAL	144	100%

AGENTS INVOLVED

A total of 36,242 agents were listed as first toxins implicated in the poisoning calls taken in 1997. Of these 6,285 pharmaceuticals and 10,574 other agents were identified by code and ranked by frequency.

A. PHARMACEUTICALS

RANK	DRUG	NUMBER OF CALLS	% OF TOTAL
1	ACETAMINOPHEN	1021	16.5%
2	TOPICAL PREPARATIONS	601	9.7%
3	BENZODIAZEPINES	490	7.9%
4	VITAMINS	472	7.6%
5	NON-STEROIDAL ANTI-INFLAMMATORY	453	7.3%
6	ANTIHISTAMINES	444	7.2%
7	SALICYCLATES	240	3.9%
8	ANTIDEPRESSANTS	238	3.8%
9	COLD PREPARATIONS	235	3.8%
10	NARCOTICS OTHER	215	3.5%
11	ANTIMICROBIALS	203	3.3%
12	OTHER/UNKNOWN DRUG	188	3.0%
13	HORMONES	124	2.0%
14	ANTACIDS/GI PREPARATIONS	115	1.9%
15	CLONIDINE	101	1.7%
16	LITHIUM	99	1.6%
17	ANTICONVULSANTS	91	1.5%
18	CATHARTICS	76	1.2%
19	COCAINE/AMPHETAMINES	73	1.2%
20	ENT PREPARATIONS	72	1.2%
21	PHENOTHIAZINES	72	1.2%
22	CARBAMAZEPINE	70	1.1%
23	PHENYTOIN	54	0.9%
24	OTHER SEDATIVES	50	0.8%
25	BARBITURATES	48	0.8%
26	CAFFEINE	48	0.8%
27	CARDIOVASCULAR DRUGS	47	0.8%
28	MUSCLE RELAXANTS	47	0.8%
29	MELATONIN	43	0.7%
30	THEOPHYLLINE	37	0.6%
31	BETA BLOCKERS	30	0.5%
32	DIGITALIS	29	0.5%
33	TRAMADOL	29	0.5%
34	OPIATES	27	0.4%
35	CALCIUM CHANNEL BLOCKERS	24	0.4%
36	DIURETICS	16	0.3%
37	MISC SUBSTANCES OF ABUSE	15	0.2%
38	ANTI-CHOLINERGICS	13	0.2%
39	MAO INHIBITORS	12	0.2%
40	ISONIAZID	9	0.1%
41	ANESTHETICS	7	0.1%
42	ALKALOIDS	4	0.1%
43	ANTI-COAGULANTS	1	<0.1%
44	DAPSONE	1	<0.1%
45	COLCHICINE	1	<0.1%
TOTALS		6,285	100%

AGENTS INVOLVED

B. NON-PHARMACEUTICALS

RANK	DRUG	NUMBER OF CALLS	% OF TOTAL
1	PLANTS	1394	13.2%
2	COSMETICS/COLOGNE	833	7.9%
3	HYDROCARBONS	657	6.2%
4	CHEMICALS	628	5.9%
5	SOAPs/DETERGENT	598	5.7%
6	INKS/PAINT/DYES	513	4.9%
7	FOOD	476	4.5%
8	FOREIGN BODIES/BATTERIES	433	4.1%
9	TOYS/SPORTS EQUIPMENT	377	3.6%
10	BLEACH	355	3.4%
11	TOXIC ALCOHOLS	334	3.2%
12	ETHANOL	300	2.8%
13	CLEANERS	295	2.8%
14	CARBON MONOXIDE/GASES	259	2.4%
15	ALKALINE CAUSTICS	246	2.3%
16	TOBACCO/NICOTINE	193	1.8%
17	SILICA	169	1.6%
18	ACIDS	168	1.6%
19	THERMOMETERS	168	1.6%
20	GLUES/PASTE/PUTTY	157	1.5%
21	PESTICIDES	157	1.5%
22	MUSHROOMS	148	1.4%
23	FERTILIZERS	138	1.3%
24	MOTHBALLS/DEODORIZERS	136	1.3%
25	LEAD/HEAVY METALS	133	1.3%
26	CONSTRUCTION MATERIALS	110	1.0%
27	INSECT/BEESTING	110	1.0%
28	FLUORIDE	108	1.0%
29	SALT/MINERALS	108	1.0%
30	OTHER OFFICE SUPPLIES	101	1.0%
31	ETHYLENE GLYCOL	96	0.9%
32	CAMPHOR	83	0.8%
33	POWDERS/TALC	82	0.8%
34	FREON	71	0.7%
35	ORGANOPHOSPHATE/CARBAMATE	69	0.7%
36	WATER	60	0.6%
37	RODENTICIDES	53	0.5%
38	MATCHES	41	0.4%
39	FIRE EXTINGUISHERS	38	0.4%
40	METHANOL	33	0.3%
41	TOOTHPASTE	19	0.2%
42	TYPEWRITER CORRECTION FLUID	19	0.2%
43	ESSENTIAL OILS/CANDLES	19	0.2%
44	FORMALIN/FORMALDEHYDE	18	0.2%
45	SNAKES	18	0.2%
46	OTHER ANIMAL BITES	15	0.1%
47	SPIDER BITES	11	0.1%
48	HERBICIDES	8	0.1%
49	KETONES	8	0.1%
50	STARCH	6	0.1%
51	LACRIMATORS	2	<0.1%
TOTALS		10,574	100%

DEATHS

There were 24 deaths recorded by the poison center in 1997, 11 males and 13 females. The deaths were distributed throughout the year fairly evenly. All involved adults 21 years or older. One 21-year-old adolescent died trying to lose weight by taking phenylpropanolamine when she developed arrhythmias, cardiovascular collapse, and an acute onset respiratory distress syndrome. Twenty-four different chemicals or drugs were cited as associated with these 24 deaths. Note that citation of a drug or chemical does not necessarily imply that these agents were the cause of death. Also, multiple agents were sometimes associated with a single case.

Medications were involved in the majority of these deaths. Specific agents included (Number Of Cases Shown In Brackets):

Ace Inhibitor	Methanol
Acetaminophen (5)	Nitroprusside
Benzodiazepine (4)	Opiate (2)
Beta Blocker (2)	Paroxetine
Calcium Channel Blocker	Phenylpropanolamine
Cocaine (2)	Phenytoin (2)
Colchicine	Tamoxifen
Cyanide	Theophylline
Digoxin	Thiazide Diuretic
Ethanol (4)	Tricyclic Antidepressants (3)
Ethylene Glycol	Venlafaxine
Insulin	
Lithium (2)	

PUBLIC EDUCATION

The System continues to develop new approaches to educating the general public about poisoning prevention. Decentralization of materials and information has continued to be the major mode of education. This year's efforts were conducted by Coordinator of Education, Ms. Judith Shaw, RN, MPH.

Poison Prevention Week in March, 1997, was designed to increase public awareness via press releases and media interviews. In addition, a poison prevention checklist was distributed at five Star Markets and mailed to over 200 pharmacies throughout the state to be distributed that week. Educational displays and give-aways took place at Carney Hospital, Children's Hospital, Newton Wellesley Hospital and Eaton Apothecary Pharmacy, Wellesley, MA.

The System continues to meet its public education goals with a variety of activities. Seasonal and holiday related poisoning prevention announcements have been distributed to the media as a public service on a regular basis. Additionally over 57,000 telephone stickers and 8,000 poison center brochures were distributed throughout the state in 1997. Many of the public education materials were updated and revised. A concentration upon targeting more effective media outreach has produced new contacts and increased coverage of important poisoning issues. TV coverage has included: Channel 5 - Chronicle; Channel 4; news features; and Cable News Network.

Development of a web page was finalized last year(www.mapoison.org). The page includes the annual report, staff at the center, public education materials and links to other related sites. A section for public education materials is now being added.

Presentations to various community groups and organizations in 1997 included:

Date	Audience	Topic
2/6/97	Medway Adult Education	Safety & Poisonings
3/28/97	Roslindale Elementary	Use of Ipecac
	Boston State House-Health Fair	Ma Poison Control
7/7/97	Boston Elementary Schools	Citizen's Workshop
10/22/97	Winchester Paramedics	Toxicology Refresher
10/29/97	Buckingham, Brown & Nichols High School	Alcohol & Drugs
10/23/97	Medway Parent's Group	Child Safety
12/12/97	Worcester School Nurses	Tragic of School Injury
12/9/97	Groveland Fire Dept.	Toxicology Training

Media interviews in 1997 included:

Date	Media Outlet	Topic
2/1/97	WRKO	HealthWatch
2/11/97	WGBH	Gamma-HB
6/8/97	WCBS-Muncie, Indiana	Nicotine Patch
5/4/97	Washington Post	Nicotine Patch
5/4/97	Associated Press	Nail Primers
5/4/97	Bottom Line-Personal	Nail Primers
6/1/97	Redbook Magazine	Nail Primers
9/1/97	Parents' Magazine	Nail Primers
10/29/97	WSAR	Halloween Safety

PROFESSIONAL EDUCATION & RESEARCH

Staff at the Poison Control Center continue to provide leadership in the education of health professionals in clinical toxicology here in Massachusetts as well as nationally.

Clinical Toxicology Review (CTR): Now its 20th year of publication, the monthly update of the Poison Control Center, Clinical Toxicology Review, has distributed over 21 volumes comprising 264 individual issues. Our mailing list for Clinical Toxicology Reviews continues to expand internationally; subscriptions are still free to member hospitals and health maintenance organizations within Massachusetts.

Postgraduate Education Outreach: Poison Center staff have been active in providing continuing education lectures and courses for physicians, nurses, pharmacists, emergency medical technicians, and health policy makers. Off-site training seminars, grand rounds, and other educational formats were provided at the following institutions in 1997:

Children's Hospital
Lahey Clinic
Tufts Medical School
New England Emergency RN's
Massachusetts General Hospital
The Cambridge Hospital
Littleton-Area EMT's
Worcester School RN's
Boston-Area EMT's

Boston Medical Center
Deaconess Hospital
Metrowest-Framingham
Carney Hospital
Massachusetts College of Pharmacy
Beth Israel Hospital
Lowell General Hospital
Lawrence General Hospital
Winchester Hospital
Massachusetts State Police Academy

Poison-Center Sponsored Courses: The Poison Center has regularly sponsored programs dedicated to updating health professionals concerning specific topics in toxicology. Dr. Shannon spoke at a conference at Brooklyn, NY, on acetaminophen poisoning in March and in Charleston, South Carolina, on muscle relaxants in September. The Poison Control System cosponsored a workshop at the Ambulatory Pediatrics Association annual meeting in Washington D.C. in May, 1997. The workshop was entitled "The Pharmacotherapy of Lead Poisoning In Children." Dr. Woolf presented a 2-day course on toxicology to 120 pharmacists and physicians in Nicosia on the island of Cyprus in November, 1997.

Physician Training: The Poison Center continues to serve as a training site for health professionals. Both pediatric and adult emergency medicine residents from Boston Medical Center include a one month experience at the Poison Center among their rotations. Pediatric residents and emergency medicine fellows from Children's Hospital continue to join us on elective one-month rotations. Dr. Bob Rantilla from St. Elizabeth's Hospital also completed a one-month rotation. Additionally the Poison Center has developed a close collaboration with the toxicology fellowship training program at the University of Massachusetts Medical Center in Worcester. Dr. Robert Ferm is the director of the fellowship training program. The Poison Center continues to welcome guests from other states and internationally who wish to train in clinical toxicology.

Fellowship Training: The Poison Center, in collaboration with Children's Hospital, continues to provide a 2-year fellowship in medical toxicology. This is a highly competitive, sought-after position for physicians-in-training nationwide and qualifies the physician to become board-certified toxicologist. Dr. Carl Baum completed fellowship training in 1995-96 and is affiliated with the Department of Emergency Medicine, Children's Memorial Hospital, Chicago, Illinois. Drs. Robert Wright and Holly Perry completed their fellowship training

in 1997 and are at Rhode Island Hospital, Providence, and Cincinnati, Children's Hospital, Cincinnati, Ohio, respectively. Two new fellows, Drs. Michele Burns and Sophia Dyer, began training in July, 1997. Dr. Lawrence Quang will begin the fellowship in July 1998.

EMT Training: A training program for Massachusetts Emergency Medical Technicians has been continued, coordinated by Tom Quail, RN, CSPI, Administrator for the Poison Control Center. EMT's from throughout Massachusetts will register for a half-day on-site training experience in the Poison Center supervised by senior staff. EMT's can receive up to four hours of continuing education units for completion of this course.

Research: The Poison Control Center continues to initiate new research endeavors into many different areas of clinical toxicology including epidemiology, diagnosis, management, and the prevention of poisonings. Recent published research abstracts include:

Perry H, Shannon M, Wright R, Woolf A. Baclofen overdose:a pediatric mass exposure. *J Toxicol Clin Toxicol* 1997;35:549.

Perry H, Woolf A, Shannon MW, Baum C, Wright R. Persistent symptoms in sixteen children followin bromine exposure from a swimming pool. *Amb Child Heal* 1997;3:52.

Szekely L, Thompson B, Woolf A. Use of partial liquid ventilation to manage verapamil-SR poisoning. *J Toxicol Clin Toxicol* 1997;35:542-543.

Woolf AD. The Green Hour: Where was the 'sin' in absinthe? *J Toxicol Clin Toxicol* 1997;35:566-567.

Woolf AD, Shaw J. Childhood poisoning from methacrylic acid-containing artificial nail primers:burn severity vs. Product characteristics. *J Toxicol Clin Toxicol* 1997;35:517.

Woolf A, Shaw J. Methacrylic acid-containing nail products are hazardous to children. *Pediatr Res* 1997;41:101A.

Wright R, Hu H, Maher T, Amarasiriwardena C, Chaiyakul P, Woolf A, Shannon M. Effect of iron supplements on lead distribution and excretion in iron deficient, lead poisoned rats. *J Toxicol Clin Toxicol* 1997;35:556.

Wright RO, Hu H, Maher TJ, Amarasiriwardena C, Chaiyakul P, Woolf A, Shannon MW. Iron deficiency anemia alters lead distribution in rats. *Pediatr Res* 1997;41:116A.

Wright RO, Magnani BJ, Shannon MW, Woolf AD. N-acetylcysteine reduces methemoglobin in an in vitro model of glucose-6-phosphate dehydrogenase deficiency. *Pediatr Res* 1997;41:63A.

MASSACHUSETTS POISON CONTROL SYSTEM

PUBLICATIONS 1997-1998

PUBLISHED ARTICLES AND REVIEWS

- (1) Babl F, Karasch S, Woolf AD. Respiratory symptoms associated with ingestion of sodium hypochlorite. *Am J Emerg Med* 1998.
- (2) Baum CR, Shannon MW. The lead content of reconstituted infant formula. *Clin Tox* 1997;35:371-376.
- (3) Committee on Environmental Health, American Academy of Pediatrics. Pediatric Environmental Health American Academy of Pediatrics Press (in press).
- (4) Etzel R, Bearer R, Miller M, Shea K, Shannon M (Committee on Environmental Health, American Academy of Pediatrics). Hazards of Indoor Mold. *Pediatr* 1998;101:712-714.
- (5) Haddad L, Winchester J, Shannon M. Clinical Management of Poisoning and Drug Overdose. WB Saunders, Ed., 3rd Edition 1998.
- (6) Liebelt EL, Ulrich A, Francis PD, Woolf A. Serial electrocardiogram changes in acute tricyclic antidepressant overdoses. *Crit Care Med* 1997;25:1721-6.
- (7) Perry H, Shannon M. The Comatose Overdose: Management of Opioid and Benzodiazepine Overdose. *Curr Opinion Ped* 1996;8:243-247.
- (8) Perry H, Shannon M. Efficacy of Intravenous N-acetylcysteine in Acetaminophen Intoxication - Results of an Open-Label Clinical Trial. *J Pediatr* 1998;132:149-152.
- (9) Perry H, Shannon M. Acetaminophen in Clinical Management of Poisoning and Drug Overdose; Haddad L, Shannon M, Winchester J Eds., WB Saunders, 3rd Edition 1998.
- (10) Shannon M, Rifai, N. Accuracy of a Portable Instrument for Analysis of Blood Lead in Children. *Ambulatory Child Health* 1997;3:249-254.
- (11) Shannon MW. Lead Poisoning from an Unexpected Source in a 4-Month-Old Infant; Case Records of the Children's Hospital Pediatric Environmental Health Clinic. *Env Health Perspectives* 1998;106:229-233.
- (12) Shannon MW. Comparative Efficacy of Hemodialysis and Hemoperfusion after Severe Theophylline Intoxication. *Acad Emerg Med* 1997;4:674-678.
- (13) Shannon M, Albers G, Burkhardt K, Liebelt, E, Kelley M, McCubbin MM, Hoffman J, Massarella J, and the Flumazenil Pediatric Study Group. The Safety and Efficacy of Flumazenil in the Reversal of Benzodiazepine-Induced Procedural Sedation. *J Pediatr* 1997;131:582-586.
- (14) Shannon MW. Drug-Drug Interactions and the Cytochrome P450 system: An Update. *Ped Emerg Care* 1997;13:350-353.

MASSACHUSETTS POISON CONTROL SYSTEM

PUBLICATIONS 1997-1998

PUBLISHED ARTICLES AND REVIEWS

- (15) Shannon MW, Haddad L. Emergency Management of Poisoning in Clinical Management of Poisoning and Drug Overdose; Haddad L, Shannon M, Winchester J, Eds., WE Saunders, 3rd Edition 1998.
- (16) Shannon MW. Lead in Clinical Management of Poisoning and Drug Overdose; Haddad L, Shannon M, Winchester J, Eds., WB Saunders, 3rd Edition 1998.
- (17) Shannon MW. Theophylline in Clinical Management of Poisoning and Drug Overdose; Haddad L, Shannon M, Winchester J, Eds., WB Saunders, 3rd Edition 1998.
- (18) Shannon MW. Isoniazid in Clinical Management of Poisoning and Drug Overdose; Haddad L, Shannon M, Winchester J, Eds., WB Saunders, 3rd Edition 1998.
- (19) Shannon M. Antibiotics in Clinical Management of Poisoning and Drug Overdose; Haddad L, Shannon M, Winchester J Eds., WB Saunders, 3rd Edition 1998.
- (20) Shannon M. Herbal, Traditional and Alternative Medicines in Clinical Management of Poisoning and Drug Overdose; Haddad L, Shannon M, Winchester J, Eds., WB Saunders, 3rd Edition 1998.
- (21) Shannon M. The clinical Toxicity of Metals and Minerals in Clinical Management of Poisoning and Drug Overdose; Haddad L, Shannon M, Winchester J Eds., WB Saunders, 3rd Edition 1998.
- (22) Shannon M. Bromine and Iodine Compounds in Clinical Management of Poisoning and Drug Overdose; Haddad L, Shannon M, Winchester J Eds., WB Saunders, 3rd Edition 1998.
- (23) Woolf AD, Chrisanthus K: On-site availability of selected antidotes: results of a survey of Massachusetts hospitals. *Am J Emerg Med* 1997;15:62-66.
- (24) Woolf A, Wieler J, Greenes D: Costs of poison-related hospitalizations at an urban teaching hospital for children. *Arch Pediatr Adol Med* 1997;151:719-723.
- (25) Woolf AD. Acetaminophen Poisoning in Critical Care Pearls II. Editors: Heffner JE & SA Sahn, Hanley & Belfus Inc., Philadelphia, 1997.
- (26) Woolf AD, Caraccio T, Litovitz T, Burkhardt K. Childhood exposures to transdermal nicotine patches. *Pediatrics* 1997;99-34:1-5.
- (27) Woolf AD. Smoking and nicotine addiction: a pediatric epidemic with sequelae in adulthood. *Curr Opinion Pediatr* 1997;9:470-7.
- (28) Woolf AD, Shaw J. Childhood injuries from artificial nail primer cosmetic products. *Arch Pediatr Adol Med* 1998;152:41-46.

MASSACHUSETTS POISON CONTROL SYSTEM

PUBLICATIONS 1997-1998

PUBLISHED ARTICLES AND REVIEWS

(29) Woolf AD, Lovejoy FH. Poison Prevention. In:Haddad LM, Winchester JF, Shannon MW.,eds Clinical Management of Poisoning & Drug Overdose, 3rd Edition. Philadelphia: W.B. Saunders Co, 1998.

(30) Woolf AD, Wright. Phencyclidine. In: Haddad LM,, Winchester JF, Shannon MW, eds. Clinical Management of poisoning & Drug Overdose, 3rd Edition. Philadelphia: W.B. Saunders Co, 1998.

(31) Woolf AD: Poisoning- General Considerations in Ambulatory Pediatrics eds. Stockman JA, Lohr JA, W.B. Saunders Co., Phil. 1998.

(32) Woolf AD, Chrisanthus K. Antidote stocking in hospital pharmacies in Massachusetts. Yearbook of Pediatrics. St. Louis: CV Mosby Co, 1997.

(33) Woolf AD, Chrisanthus K. Antidote stocking in hospital pharmacies in Massachusetts. Yearbook of Emergency Medicine. St.Louis : CV Mosby Co, 1997.

(34) Woolf AD. A dark wood revisted--the Haitian diethylene glycol poisoning tragedy. JAMA 1998;279:1215,1216.

(35) Wright RO, Woolf AD, Shannon MW, Magnani BJ. Use of N-acetylcysteine to reduce methemoglobin in an in vitro model of glucose-6-phosphate dehydrogenase deficiency. Acad Emerg Med 1998;5:225-229.

ARTICLES IN PRESS

- (1) Dyer KS, Woolf AD. Phenothiazine use for sedation of children: Are the potential benefits outweighed by the risks. *Drug Safety* (in press).
- (2) Etzel R, Bearer R, Miller M, Shea K, Shannon M[lead author] (Committee on Environmental Health, American Academy of Pediatrics). Lead Poisoning and its Prevention: An Update. *Pediatr* 1998 (in press).
- (3) Greenes D, Woolf AD. Emergency Pediatrics. In Weitzman M, Haggerty R., eds. *Ambulatory Pediatrics* V. Philadelphia: EB Saunders Press, (in press).
- (4) Litovitz TL, Klein-Schwartz WL, Dyer KS, Shannon M, Lee S, Powers M. 1997 Annual Report of the American Association of Poison Control Centers Toxic Exposure Surveillance System. *Am J Emerg Med* (in press).
- (5) Perry HE, Wright R, Shannon M, Woolf AD: Baclofen overdose:drug experimentation in a group of adolescents. *Pediatrics* (in press).
- (6) Woolf AD. Toxicology. In Avery ME, First LS, eds. *Textbook of Pediatrics*, Third Edition. Baltimore: Williams & Wilkins, 1998 (in press).
- (7) Woolf AD, Berkowitz ID, Liebelt E, Rogers MC. Poisoning and the critically ill child. In Rogers MC, Helfaer M, eds. *Handbook of Pediatric Intensive Care*. Baltimore: Williams & Wilkins, 1998 (in press).
- (8) Woolf AD. Foodborne Diseases. In Dershewitz R, ed. *Ambulatory Pediatric Care*, 2nd Edition. Philadelphia: Lippincott-Raven Publishers (in press).
- (9) Woolf AD. Chapter 12: Emergencies in Parent's Guide To Child Health, eds. Kenna M, Shane H, Woolf AD (in press).
- (10) Woolf AD. Essential Oils toxicity - a review. *J. Toxicol. Clin. Toxicol* (in press).
- (11) Wright RO, Hu H, Maher TJ, Amarasiriwardena C, Chaiyakul P, Woolf A, Shannon MW. Effect of Iron Deficiency Anemia on Lead Distribution after Intravenous Dosing in Rats. *Toxicology and Industrial Health* (in press).

APPENDIX

STAFF

Director

Alan D. Woolf, M.D., M.P.H.

Assistant Director

Open

Staff Toxicologist

Michael Shannon, M.D., M.P.H.

Administrator

Tom Quail, R.N.,C.S.P.I.

Administrative Associate III

Barbara J. Bennett

Coordinator, Pharmacy Student Education

Keith Chrisanthus, R.Ph., C.S.P.I.

Coordinator, Public Education

Judith Shaw, R.N.,M.P.H.

Clinical Fellows

Michele Burns, M.D.

Sophia Dyer, M.D.

Poison Center Consultant

Kim Pearson, M.D.

Off-Site Consultants

Mike Burns, M.D.

Rose Goldman, M.D.

John Graef, M.D.

Stephen Kales, M.D.

Sam Lesko, M.D.

Barbarajean Magnani, M.D., Ph.D.

Allen A. Mitchell, M.D.

Arnold Soslow, M.D.

Chief Specialist, Poison Information

Judith Woodard-Jenkins, R.N.,C.S.P.I.

Senior Specialists, Poison Information

Arlyne Barnett, R.N., C.S.P.I.

James Rorick, R.Ph.,C.S.P.I.

APPENDIX

Specialists, Poison Information

Andrew Bartkus, R.N.
Susan Bevacqua, R.N.
Anita Bijan, R.Ph., C.S.P.I.
Kristine Cafferky, R.N., C.S.P.I.
Deidre Callinan, R.N.
Caitlin Concannon, R.N.
Cheryl DiNisco, R.N.
Virginia Fortin, R.N.
David Gaigal, R.Ph., C.S.P.I.
Robert Hallisey, R.Ph.
Alexandra Hughes, R.N.
Anne Kearney, R.N.
Safiyya Mason, R.N., C.S.P.I.
Kerry Menmuir, R.Ph
Villiscent Puran, R.Ph.
Bette Pyne, R.N.
William Partridge, R.N., C.S.P.I.
Adina Sheroff, R.N., C.S.P.I.
Kristen Swain, R.N.
Elizabeth Wilson, R.Ph.

ADVISORY BOARD MEMBERS

Chair

Bob Master, MD
88 East Newton Street
F209
Boston, MA 02118
617-638-7062
617-965-0435 (fax)

MaryAnn Manno
Pediatric Emergency Medicine
55 Lake Ave North
Worcester, MA 01655
508-856-2599
508-856-1780 (fax)

Peter Goldman, MD
Maxwell Finland Professor
of Clinical Pharmacology
Harvard School of Public Health
677 Huntington Avenue
Boston, MA 02115
617-432-2435 (fax)

Ron Kleinman, MD
Mass General Hospital
55 Fruit Street
VBK Bldg. 107
Boston, MA 02114-2699
617-726-2930
617-724-2710 (fax)

Timothy Maher, PhD
Associate Professor
Mass College of Pharmacy
and Allied Health Sciences
179 Longwood Avenue
Boston, MA 02116
617-732-2940
617-732-2963 (fax)

Phillip Pizzo, MD
Physician-in-Chief
The Children's Hospital
300 Longwood Ave
Boston, MA 02115
617-355-7681
617-355-7066 (fax)

Victoria Ozonoff, PhD
Dept. of Public Health
250 Washington Street
Boston, MA 02108
617-624-5075 (fax)

Janet Berkenfield
Office of Emergency Medicine
250 Washington Street
Boston, MA 02108
617-624-5431
617-624-5075 (fax)

Deborah Klein Walker, PhD
Dept. of Public Health
250 Washington Street
5th Floor
Boston, MA 02108
617-624-6090
617-624-6062 (fax)

Howard Spivak, MD
Associate Professor
Department of Pediatrics
New England Medical Center
171 Harrison Avenue
Boston, MA 02218
617-956-5241
617-636-7719 (fax)

Ex officio

Alan D. Woolf, MD MPH
Director
Mass Poison Control System
300 Longwood Avenue
Boston, MA 02115
617-355-6609
617-738-0032 (fax)

Joseph Kirkpatrick
Mass Hosp Assoc
5 New England Exec. Park
Burlington, MA 01803
617-272-8000
617-270-3521 (fax)

Fred Lovejoy, MD
Department of Medicine
Children's Hospital
Boston, MA 02115
617-355-6605
617-738-7066 (fax)

Commissioner Howard Koh,MD,MPH
Dept. of Public Health
250 Washington Street
2nd Floor
Boston, MA 02108
617-624-6000
617-624-5206 (fax)

ADVISORY BOARD MEMBERS

Linda Doctor
Dept. of Public Health
250 Washington Street
Boston, MA 02108-4619
617-624-5483
617-624-5075 (fax)

Arnold Soslow, MD
Director, Corporate
Health Program
Metrowest Medical Center
115 Lincoln Street
Framingham, MA 01701
508-626-0386
508-626-2834 (fax)

Allen Mitchell, MD
Associate Director,
Sloan Epidemiology Unit
Boston University
School of Medicine
1371 Beacon Street
Brookline, MA
617-734-6006
617-738-5119 (fax)

Laurie Allen
MA Association of HMO's
18 Tremont Street
Suite 305
Boston, MA 02108
617-523-3300
617-523-0344 (fax)

MEMBER AFFILIATES

Addison Gilbert Hospital
Athol Memorial Hospital
Baystate Medical Center
Berkshire Health Systems
Beth Israel Hospital
Beverly Hospital
Boston Medical Center
Boston Regional Medical Center
Brigham & Women's Hospital
Brockton Hospital
Cable Hospital
Cambridge Hospital
Cape Cod Hospital
Carney Hospital
Charlton Memorial Hospital
Children's Hospital
Cooley Dickinson Hospital
Dana Farber Cancer Institute
Deaconess Glover Hospital
Deaconess Nashoba Hospital
Emerson Hospital
Fairview Hospital
Fallon Community Health Plan
Falmouth Hospital
Faulkner Hospital
Franciscan Children's Hospital
Franklin Medical Center
Good Samaritan Medical Center
Hale Hospital
Harrington Memorial Hospital
Harvard Pilgrim Health Care
Heywood Hospital
Hillcrest Hospital
Holy Family Hospital
Holyoke Hospital
Hubbard Regional Hospital
Hunt Center
Jordan Hospital
Lahey Clinic
Lawrence General Hospital
Lowell General Hospital
Mass College Pharmacy
Mass Eye & Ear Infirmary
Mass General Hospital
Malden Hospital
Mary Lane Hospital
McLean Hospital
Medical Center at Symmes
Melrose Wakefield Hospital
Metrowest Medical Center
Milford Whitinsville Hospital
Milton Hospital
Morton Hospital & Medical Center
Mount Auburn Hospital
Nantucket Cottage Hospital
Neighborhood Health Plan
New England Baptist Hospital
New England Deaconess Hospital
New England Medical Center
Newton Wellesley Hospital
Noble Hospital
North Adams Hospital
Northeastern University
North Shore Medical Center
Norwood Hospital
Quincy Hospital
Saints Memorial Medical Center
Somerville Hospital
South Shore Hospital
Southern Regional Med Ctr./Nashua NH
Southwood Community Hospital
St. Elizabeth's Medical Center
St. Luke's Hospital
St. Vincent's Hospital
Stillman Infirmary
Tobey Hospital
U Mass Medical Center
University Hospital
VA Brockton/W Roxbury
Whidden Memorial Hospital
Winchester Hospital
Wing Memorial Hospital

Acknowledgments

A special thank you to the following for
their donations to the Poison Center:

Facts & Comparisons
Lexi-Comp Inc.





ACME
BOOKBINDING CO., INC.

JAN 1 2002

100 CAMBRIDGE STREET
CHARLESTOWN, MA 02129



